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A pumper at a central plant checking the daily operations of five wells on a Kobe Multiple Well Installation. Wells are 4200-ft. deep on a 20-acre spacing, and are producing approximately 50 barrels per day each. Pertinent operating facts regarding production, strokes per minute, bottom hole pressure, etc., for each well are obtained from the individual well gauges shown.

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Trends

Expansion in Plant Runs Not Warranted By Gasoline Stocks

REFINERY operators in the United States the last quarter of 1940 and the early part of this year were commended for the better balance they were maintaining in their plant operations. The lower operating level was gradually bringing about a healthier condition in gasoline stocks and in general there were no unwanted trends in the production of other products. It was pointed out in this column (January 30 issue) that if these operations were maintained, the industry's gasoline stocks on April 1 would be approximately 5 million barrels under April 1, 1940. This analysis was based on the crude runs to stills for the 3 weeks ending January 18. The daily average runs for that period, according to A.P.I. reports, were 3,543,000 bbl. or 1.2 per cent greater than the daily average runs for the first quarter of 1940. This small increase in runs, with an estimated gain of 6 per cent in gasoline demand, would mean that additions to gasoline stocks the first quarter of this year would be at a slower rate than was the case a year ago and gasoline inventories would be around 97 million barrels April 1. While many statisticians feel this total is too high, inventory conditions with that operating schedule would be much better than they were on April 1, 1940, and the industry would have a basis for further improvement through the remaining spring period.

CRUDE PRODUCTION *3,614,565 bbl. daily average—up 19,805 bbl. One year ago 3,682,914 bbl.*

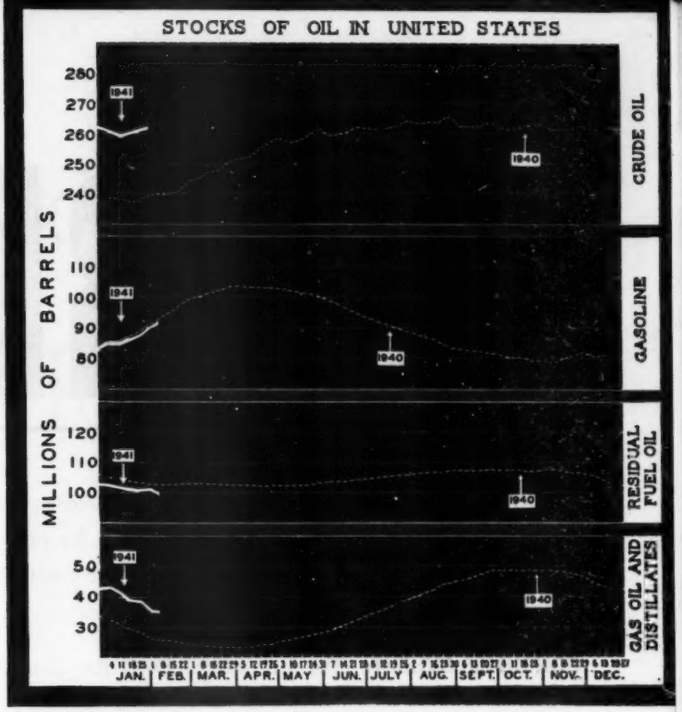
CRUDE STOCKS *261,208,000 bbl. as of February 1—up 1,115,000 bbl. One year ago 239,380,000 bbl.*

GASOLINE STOCKS *93,265,000 bbl. as of February 8—up 2,401,000 bbl. One year ago 93,352,000 bbl.*

RESIDUAL FUEL-OIL STOCKS *99,921,000 bbl. as of February 8 — down 507,000 bbl. One year ago 102,816,000 bbl.*

GAS OIL AND DISTILLATES *36,709,000 bbl. as of February 8 — down 925,000 bbl. One year ago 25,941,000 bbl.*

REFINERY RUNS *3,640,000 bbl. daily week ended February 8 — down 40,000 bbl. One year ago 3,460,000 bbl.*

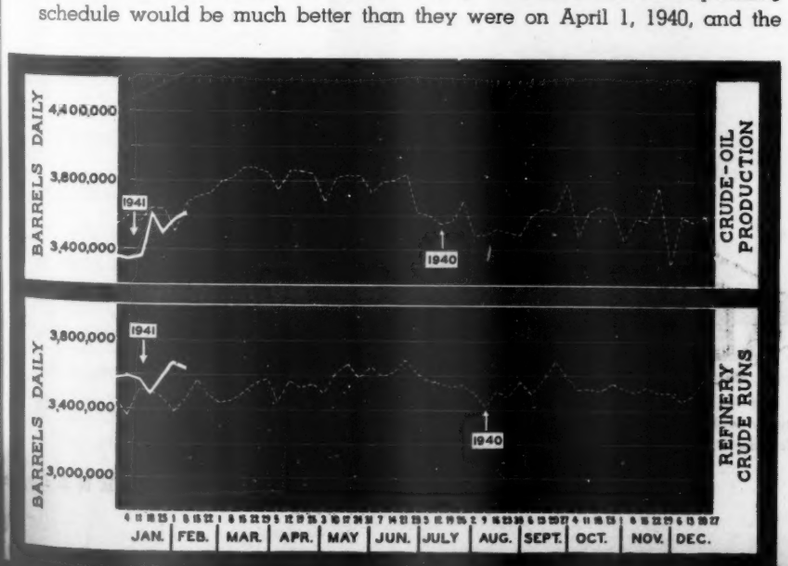


Refiners ended this favorable trend in their operations the week ending January 25 when runs to stills increased 135,000 bbl. daily and they added another 55,000 bbl. daily the following week. It is not desirable to draw conclusions from the ups and downs of refinery operations over a week or 2-week period, but if subsequent reports reveal that the late January data mark a definite upward trend in refinery operations, all the previous conclusions will be nullified. With no general shortages in other products, the excuse offered the first quarter of last year that plant operations had to be expanded to take care of a large demand for gas oil and distillates does not apply this year. Inventories of these products are more than 11 million barrels greater than they were a year ago. Observers are pointing out that any increase in refinery operations at this time will delay the needed improvement in gasoline prices in all markets. The improved statistical position of gasoline at the start of the year brought a more optimistic feeling among sellers but there has been no general improvement in quotations.

Price changes of the past week largely centered in areas directly affected by the lower tanker rates on coastwise shipments. The lower rates have brought larger spot supplies at several East Coast points and there have been fractional reductions in wholesale prices for a few products.

DAILY AVERAGE PRODUCTION FOR WEEK

	Feb. 8, 1941	Bur. Mines Feb. est. of demand	February state allowables	Feb. 1, 1941
Arkansas	70,025	66,100	69,969	70,645
California	617,250	595,700	571,000	603,725
Eastern fields	111,200	121,800	.....	110,300
Illinois	322,750	342,100	.....	323,390
Kansas	177,500	193,200	197,000	198,000
Louisiana	294,190	288,600	294,942	290,475
North Louisiana	*69,340*	.....	.....	*67,975*
Louisiana Gulf Coast	*224,850*	.....	.....	*222,500*
Michigan	39,510	47,500	.....	39,950
Mississippi	19,970	16,100	.....	18,995
Nebraska	2,790	3,200	.....	2,550
New Mexico	102,650	100,700	106,000	102,950
Oklahoma	418,600	442,500	400,000	400,500
Rocky Mountain states	96,230	98,500	.....	96,080
Texas	1,341,900	1,312,900	1,318,873	1,337,200
East Texas	*376,100*	.....	.....	*375,725*
West Texas	*237,725*	.....	.....	*228,675*
North Central Texas	*131,000*	.....	.....	*130,700*
East Central Texas	*72,775*	.....	.....	*82,100*
Texas Panhandle	*74,025*	.....	.....	*74,525*
Texas Gulf Coast	*361,000*	.....	.....	*356,625*
Southwest Texas	*89,275*	.....	.....	*88,850*
Total United States	3,614,565	3,628,900	.....	3,594,790
Total, January 1-February 8, 1941		137,320,895 bbl.		
Same period last year		141,257,867 bbl.		



SPARKS . . . FROM THE NEWS

TWO-WAY RECORD: The Journal's annual motor-fuel survey shows motorists are getting better gasoline with the refinery return lower than ever before. The first part of this record is fine, the last not so good.

CONSUMER EXHIBIT: The first year of the Guffey Coal Act enforcement brought a 50-million-dollar hike in the nation's coal bill. Petroleum consumers should have this information when they consider federal control of the oil business.

WAY OF OIL PROPHECIES: The secretary of the interior, 25 years ago, said there were 7,629,000,000 bbl. of petroleum remaining in the ground. Since then three times that quantity of oil has been produced and proven reserves at this time are nearly three times the 7½-billion estimate.

BIG NEWS: The big news of the week is President Roosevelt's letter to Chairman Lea calling attention to the obstructionist tactics of "other carriers" in delaying the construction of gasoline pipe lines in the Southeast needed for defense. Is this an indication that Washington is at last recognizing the accomplishments and problems of this industry?

NOTEWORTHY: It is noteworthy that most of the nation's new defense plants in the Middle West and Southwest are being located adjacent to natural-gas, crude-oil and gasoline pipe lines.

WILL IT? The Department of Agriculture's Year Book concedes that the production costs of alcohol would be twice that of gasoline with the raw material furnished free. This should end the agitation for an alcohol mixture in motor fuels.

ACCOMPLISHMENT: The recycling of gas and recovery of distillate will pass 50,000 bbl. daily this year. A big stride for a development which is only 3 years old.

TO THE REAR: A Texas legislator's idea that holding up action on a pending proration bill will force other states to adopt conservation measures is dangerous. Nothing is ever gained when a leader goes to the rear.

PREMATURE: A producer says that the praise given refiners for the low level of their operations in December and early January was premature and apparently has gone to their collective head. He refers to the recent increases in runs to stills.

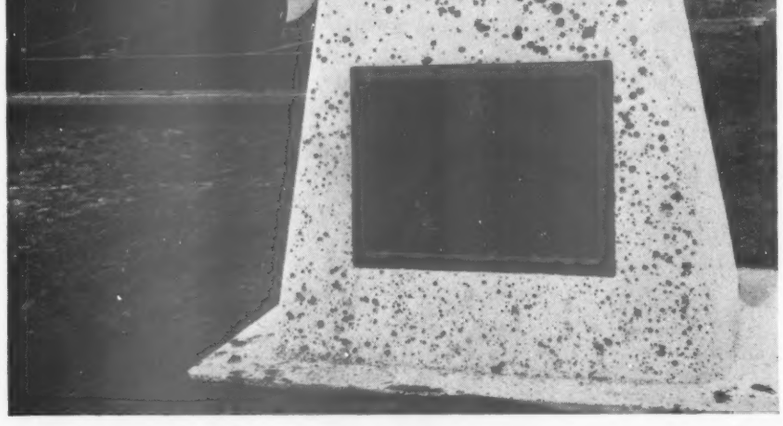
MAXIMUM RETURN: Arkansas' new discoveries have not been outstanding recently. The decision to carry on a unitized repressuring operation in the Schuler field indicates the state is determined to get the maximum returns from what it has.

MAJOR DISCOVERY: While results at two extension tests—long distances from the discovery well—have not been favorable, operators continue to believe that the Hawkins play in East Texas will be a major development in 1941.

THE HARD WAY: Progress has been slowed on West Virginia's deep test due to its encountering quartzite. Footage drilled has varied from 0 to 2 ft. per day for the last 85 ft.

RECOMBING: Oklahoma continues to recomb its old areas and last week was rewarded with a flowing well within the Osage Nation, one of the state's oldest producing sections.

TRIBUTE TO A CHAMPION . . .



Back in June 1938 when the Lions Club presented this monument marking the Texas Co.'s Salem, Illinois, field discovery well there was not much tangible evidence of the potentialities that are now well known. Spreading from this spot the Salem field now covers more than 10,000 acres and cumulative production through January was 126,064,000 bbl. Salem was the second largest field in 1940 trailing only incomparable East Texas

Arkansas Oil Board Approves Unitized Schuler Operation

By GEORGE WEBER

EL DORADO, Ark., Feb. 11.—Two important steps involving increased conservation of oil and gas have been taken in Arkansas. As a result of a state-wide hearing before the Arkansas Oil and Gas Commission last week, a unitized repressuring project was launched in the Schuler field, and preparations were made for conservative development and production of gas and condensate from the McKamie field.

Both programs reflect the increasing importance being given pressure maintenance. Further, they mark the spread of these new concepts to practical application in still another state. Schuler represents the case of a field where pressure maintenance and repressuring is undertaken as a corrective measure following pressure decline. McKamie, on the other hand, represents the more important example where application of advanced pressure-maintenance and spacing principles are anticipated and provision is made for waste prevention in an early stage of the field's development.

Schuler Agreement

Operators in the Jones pool of the Schuler field, Union County, have long advocated unitization of properties as a means to applying pressure maintenance to the gas-drive pool. Although development of Schuler took place in an orderly manner, and production has not been excessive, the absence of a water drive has contributed to reservoir-pressure decline, formation of a gas cap, and in the past few months to rapidly increasing gas-oil ratios in Jones sand wells.

Accordingly, on January 15, operators owning 160 of the total of 166 Jones sand wells in the field entered into a unit-operation agreement. Royalty owners in the field cooperated in drawing up a royalty-pooling agreement. The first instrument provides for the vesting of the signers' operating rights to Jones sand production in an operators' committee of five members; one appointed by the Lion Oil Refining Co., one by the Phillips Petroleum Co., two by Edwin M. Jones, C. H. Murphy, Ruth, Joe B., Jr., and Lou Anne Hurley and the remaining member by all other parties to the operators' agreement. The pooling agreement, signed by royalty owners, supports the points of the operating agreements, and sets up participating agreements on royalty payments without regard to individual well production.

The operators' committee holds operating rights over the entire unitized property. Any action of the group must be supported by a quorum, which consists of three members representing at least 51 per cent of the interest in the unit. Immediately on organization of the committee, it is charged with the duty of adopting a plan for erection of a suitable plant for reinjecting into the Jones sand horizon gas produced from it, and other gas, air, or water for repressuring purposes. The plant will be constructed on a turn-key contract and operating rights, upon its acceptance from the contractor, will be vested in the committee.

Signatory operators to the agreement participate in expenses and returns of the project in a fixed percentage representing the fractional interest of each operator's holdings in the whole.

At the time that the operating agreement was submitted to the state commission with an application for orders effecting the project, a royalty-pooling contract agreed to by 76.7 per cent of royalty owners in the field was also submitted. The percentage of signatories to the latter instrument is expected to be considerably augmented when all persons concerned have been seen.

Order Issued

In full cooperation with Schuler operators, the Arkansas Oil and Gas Commission issued February 5, the day following the hearing, an order approving both agreements and declaring them in effect. In fixing allowable production from Schuler, the commission continued the same field total, but allocated 95.756 per cent to the unitized area, and the remaining fraction to the six wells of the Alice Sidney Oil Co., the sole operator not agreeing to unitization.

It is expected that more conservative practices will result immediately at Schuler without awaiting completion of the repressuring plant. This will be accomplished by adjusting production in the unit so that high gas-oil-ratio wells may be shut in, thereby reducing the total volume of withdrawal from the pool. This will result in a reverse in the trend shown in Fig. 1. The productive-history chart of Schuler illustrates graphically the rapid increase in voidage since early last year, attributable to increased gas-oil ratios. Although oil production was reduced during the period, the daily voiding of reservoir space doubled, increasing from about 36,000 bbl. in February to over 73,000 bbl. in December. Oil production declined from 15,100 to 13,300 bbl. during the same period.

In their testimony at the hearing, experts estimated that the repressuring project at Schuler would result in an added recovery of from 8 to 10 million barrels of oil. The possibility of augmenting the gas repressuring with water flooding has not been investigated, but if found feasible and applied, it will, in their opinion, bring the total added recovery to possibly 16 million barrels.

McKamie Gas Field

In contrast to Schuler, where corrective measures are being taken to increase recovery, the McKamie field is a new reserve undergoing initial development. The character of its production demands that steps be taken early in its development history to prevent waste.

As testified at the hearing, hydrocarbons produced in gas and liquid form at McKamie originally existed in the reservoir only in the gas phase. This was proven by recognized phase-analysis studies conducted by the Humble Oil & Refining Co., at Houston. The dew point, or pressure at which liquid condenses from the gas phase, was determined as approximately 4,365 lb. per sq. in., which was the original pressure in the reservoir be-

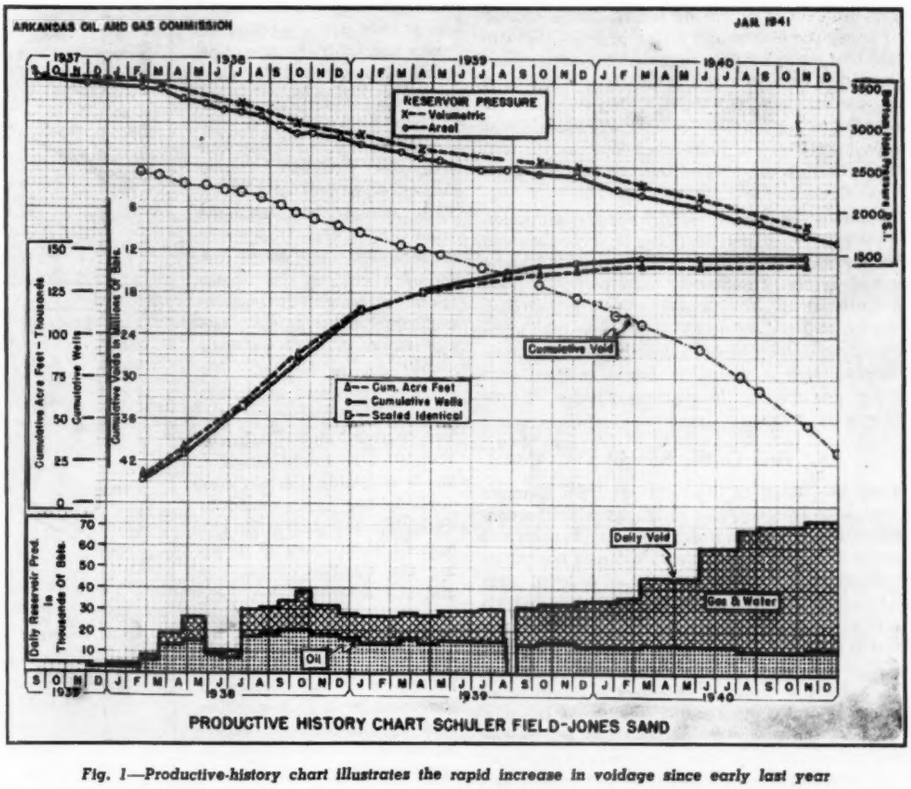


Fig. 1—Productive-history chart illustrates the rapid increase in voidage since early last year

fore first production was withdrawn from the pool.

Should McKamie be produced with declining reservoir pressure, not maintained by water drive or recycled gas, it is estimated that condensation in the reservoir, attending the pressure decline, would result in an irrecoverable loss of approximately 40 per cent of the liquid. That fraction which condenses in the porous Smackover lime would represent such a small fraction of the total pore space, that it would barely wet the vast amount of surface in the formation, and therefore would neither collect and drain to well bores, nor be removed by gas or water wash. Therefore prevention of condensation is the primary consideration.

The field differs from the usual gas-condensate reservoir, in that its production contains a high percentage of hydrogen sulfide, averaging more than 4,000 grains per 100 cu. ft. This sour characteristic would make its handling in compressors and other recycling-plant equipment very difficult.

An effective water drive will greatly simplify the pressure-maintenance problem. Instead of recycling gas, the withdrawal rate will be adjusted to conform to water encroachment, and reservoir pressure will be thus maintained at a point as near the original as practicable. Such a program will prove more economical, eliminating costly recycling equipment. In addition, it will provide more efficient depletion of the gas reserves, since controlled water encroachment will displace practically all gas, as compared to partial displacement, diffusion and ultimate channeling which would attend gas recycling.

The problem of preparing for McKamie production under the best conservation practice that can be devised occupied the attention of operators and commission members at the hearing. Since it is proven to be a gas field, the first step was to revise the well-spacing pattern. State law requires that no spacing pattern of more than 40 acres per well be ordered in any oil field, but the limit is lifted for gas fields.

Testimony presented before the commission pointed to the fact that due to the high porosity and permeability of the Smackover lime at McKamie, one well correctly located would effectively drain the entire field. The area is not now unitized, however, and for purposes of defining the field's limits, preparatory to formulating plans for pressure maintenance, the commission ordered that drilling proceed on the spacing pattern of one well per 160 acres.

Gas Outlet Sought

Since the status of the field has been changed to that of a gas pool, gas, produced with the condensate, must be withdrawn on a market-demand basis, or reinjected. For the duration of the field's development, the commission has ordered that each well be granted 20,000 cu. ft. of gas and 2.5 bbl. of condensate per acre per day. Much of the gas will be utilized as drilling fuel during this period, and unused gas may be temporarily flared.

W. A. Delaney appeared before the commission, stating that he could economically treat the gas, to remove the hydrogen sulfide, and utilize the sulfur compound in the manufacture of byproducts. If the proposal proves feasible, it will render McKamie gas suitable for industrial and domestic consumption. The commission accordingly ordered that tests and experiments be begun to determine whether this possibility exists, and a progress report from operators has been ordered for the next hearing, setting out the findings in this matter.

If an available market for gas has not been found by the time the development period is completed, it may become necessary to inject the gas to some shallow-sand reservoir to be stored until a market materializes. The Tokio sand, occurring at about 3,400 ft., is considered a good storage horizon. Injection tests may also be made to find whether the sand will take the gas in sufficient quantities.

Large Reserve

On the basis of geophysical data, the McKamie structure is believed productive over an area of approximately 4,200 acres. The importance of the field as a gas and condensate reserve is revealed in recovery estimates made on the basis of the three wells so far completed. An average porosity of 18 per cent and a porous section of 100 ft. in the area now developed indicate the volume of gas in place is 100,000,000 cu. ft. per acre, and the recovery of condensate is estimated at 6,000 to 10,000 bbl. per acre, depending on the production practice. The current gas-liquid ratio of the three producing wells is 8,000 cu. ft. per bbl., or 5.25 gal. per 1,000 cu. ft., an unusually rich condensate yield.

The action taken by the commission in the orders concerning Schuler and McKamie reflects the state's active interest in conservation. In the case of Schuler, operators are aided in the repressuring work by the most complete collection of data on any field in the nation. The same provisions for compiling accurate information on gas and condensate production, reservoir pressure and subsurface information will provide McKamie operators and commission engineers with a sound basis for a practicable conservation policy in that field's future production. The vital step which remains at McKamie is unitization, which is expected to follow definition of the field's limits.

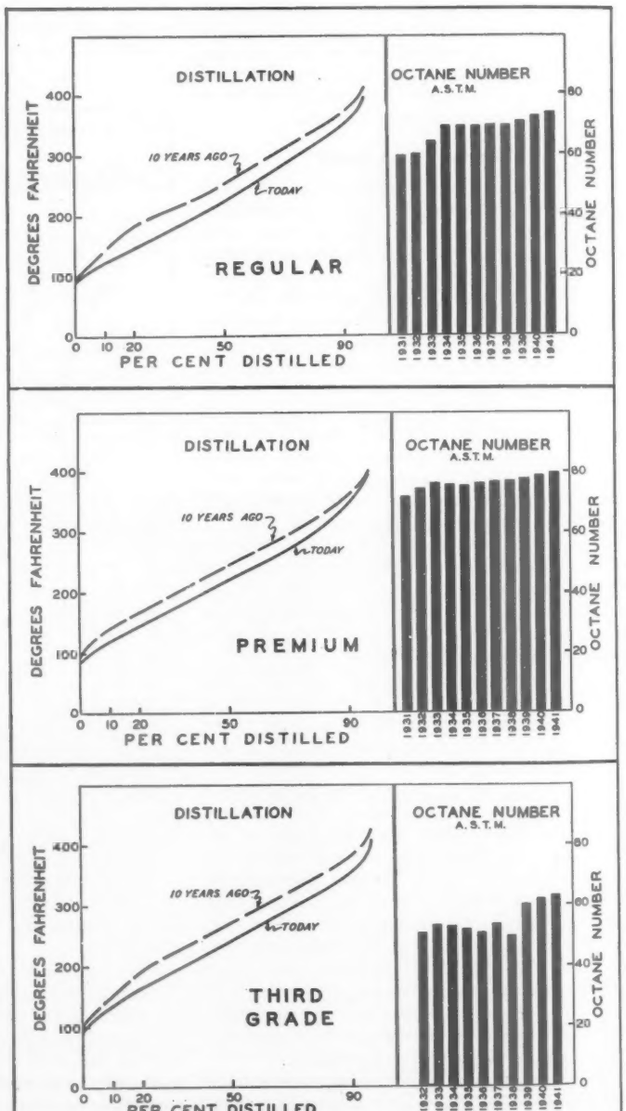
Octane-Rating Trend Continues Upward

By W. T. ZIEGENHAIN

TODAY the motorist receives better gasoline when buying the regular grade than when supplied 10 years ago with the premium grade at a 3-cent differential in price.

These conclusions are drawn from The Oil and Gas Journal's fifteenth annual survey of motor-fuel quality. This survey was changed from time to time to equalize adjustments made within the industry, such as the modification of laboratory tests to yield higher or lower average results than the previous years, and, as a whole, the findings represent as close a comparison of representative data covering motor-fuel characteristics as found practicable to assemble. Certain concessions had to be made in designing the survey in its present form, such as limiting the number of samples and the extent of the locations from which these samples are taken, but as a result it has been possible to present tests on samples of the three grades of gasoline sold by the same 12 representative refining companies and for more than the past 10 years.

The companies whose samples have been checked annually include the Standard Oil Co. of Ohio, Cities Service Oil Co., Skelly Oil Co., Continental Oil Co., Barnsdall (Bareco) Oil Co., Mid-Continent Petroleum Corp., Phillips Petroleum Co., Magnolia Petroleum Co., Gulf Refining Co., Texas Co. and the Standard Oil Co. (Indiana). The



Note uniform distillation ranges and smooth curves as well as continued rise in octane value for all three grades of gasoline

AVERAGE OF LABORATORY TESTS ON 36 REPRESENTATIVE SAMPLES

REGULAR GRADE

	1930	1931	1932	1933	1934	1935	1936	1937	1938	1939	1940	1941
Octane number	...	60	61	65	69	69	69	70	72	73	73	74
Initial point, °F.	97	97	91	94	92	90	87	89	89	89	87	90
10 per cent, °F.	149	148	143	139	135	127	127	125	122	127	126	124
20 per cent, °F.	182	182	173	166	163	153	155	150	147	150	151	148
50 per cent, °F.	261	255	256	247	242	231	236	240	226	225	228	223
90 per cent, °F.	375	373	377	365	354	352	359	358	352	352	353	350
End point, °F.	416	411	404	406	403	400	406	401	400	396	396	398
Recovery, pct.	96.5	96.9	96.7	96.5	96.7	96.4	96.2	96.2	96.5	96.0	96.1	96.2
Vapor pressure	...	6.4	9.0	9.5	9.5	10.4	11.1	10.3	10.5	10.6	10.9	10.8

PREMIUM GRADE

Octane number	...	72	74	76	75	75	76	77	79	80	79	80
Initial point, °F.	94	94	97	96	93	94	91	93	90	89	89	85
10 per cent, °F.	140	141	146	142	136	132	129	126	123	127	124	122
20 per cent, °F.	174	170	171	177	163	157	153	150	146	149	146	146
50 per cent, °F.	256	246	243	237	235	225	223	219	217	220	219	221
90 per cent, °F.	365	361	352	350	344	338	338	332	336	347	349	348
End point, °F.	407	403	368	399	394	392	392	386	393	393	399	398
Recovery, pct.	97.0	97.5	96.9	96.4	97.1	96.9	96.4	96.5	96.8	96.0	96.2	96.3
Vapor pressure	...	7.5	8.1	9.0	8.8	9.6	10.2	9.2	10.4	9.9	10.3	10.7

THIRD GRADE

Octane number	...	...	51	53	53	52	51	54	52	62	62	63
Initial point, °F.	87	...	102	96	96	97	99	97	98	95	95	92
10 per cent, °F.	143	...	152	148	146	148	154	143	147	142	141	139
20 per cent, °F.	177	...	193	181	180	181	185	173	179	170	172	166
50 per cent, °F.	267	...	276	264	252	261	257	248	250	245	248	241
90 per cent, °F.	404	...	380	368	367	373	371	361	361	357	365	351
End point, °F.	437	...	423	426	425	421	416	411	413	405	408	408
Recovery, pct.	95.5	...	97.3	97.3	97.5	97.0	96.7	96.7	97.2	96.5	96.9	96.7
Vapor pressure	...	...	6.5	7.6	8.4	7.8	8.0	8.0	7.4	8.0	8.5	9.0

Results 1930 based upon average tests made on 34 samples purchased from company-owned stations operating in Tulsa, including Phillips, Texas Co., Skelly, Pierce, Magnolia, Barnsdall, Sun, Shell, Transcontinental, Cities Service, Sinclair, Continental, Mid-Continent, Wilcox, Independent Oil, Tidal, National, and Southland Gasoline.

Results 1931 to date based upon average of tests made on samples purchased from company-owned stations in Cleveland, Chicago, Kansas City, Fort Worth, and Tulsa, including Standard of Ohio, Skelly, Cities Service, Continental Oil, Barnsdall, Mid-Continent, Phillips, Sinclair, Magnolia, Gulf, Texas Co., and Standard of Indiana.

Octane numbers for 1938 and 1939 by L-3 method. All previous and later years by A.S.T.M. method.

This year The Oil and Gas Journal's annual survey of motor-fuel quality reflects a continuation of improvement of quality among all three standard grades. Uniformity of distillation range and the absence of humps and valleys in the respective distillation curves characterize this year's results. Octane values strike a new high average for each of the three standard grades.

samples secured from these companies were purchased at well-established filling stations which prominently displayed the respective company names and, as far as practicable, these samples were collected from substantially the same stations year after year. The stations are located in Cleveland, Chicago, Kansas City, St. Louis, Fort Worth, and Tulsa.

Discussion of Results

Most noticeable in a close comparison of the detailed tests is the uniformity of distillation ranges among the three grades. In each instance, including the distillation test on the third grade, the curve which connects the respective distillation points is smooth. It approaches a straight-line chain of boiling points in each case. The humps and valleys seen in the distillation curves of several years ago are noticeably lacking today.

The uniformity of the distillation ranges and the smoothness of the three curves suggests that the primary difference among the three grades is reflected in their octane values.

As a group, the regular fuels show an average octane rating of 74. This is one number higher than shown for the previous year and only one number higher than was shown for 1939. However, this numerical comparison is not accurate, since the A.S.T.M. method of determining this was used in the past 2 years, while the L-3 method was used in 1939. The latter method yields results which average one to two numbers higher than A.S.T.M. procedure when testing this group of fuels. Therefore, it may be more accurately concluded that present fuels are three to four numbers higher in octane value than the same regular fuels offered 2 years ago.

With the average octane value of the premium grade reaching 80 this year, a difference of six numbers between the octane value of the regular grade is again retained. This difference is considered a minimum to enable the motorist to readily detect the superiority of performance of a fuel of higher octane value. It is assumed, of course, that his car engine has been designed and tuned to utilize to best advantage the fuel of higher octane value.

Similarly, there is retained this year a most substantial difference in the octane values of the average third grade and the average regular. This difference is shown as 11 and of course is more than enough to reveal the inferiority of the third-grade fuels if the motor in which such a fuel is used has not been adjusted to utilize the lower-octane fuels.

Manufacturing Problems

In order to manufacture fuels which exhibit average octane values of the order tabulated here, it is necessary to curtail the production of straightrun gasoline to the economic limit. In addition, the greater number of refiners are obliged to thermally crack and reform a substantial portion of their naphthas and light distillates. More recently refiners have resorted to polymerization and catalytic cracking. Alkylation has been used to manufacture 100-octane aviation fuels and this type of material can easily find an outlet in the ordinary refinery motor-fuel production if the demand for 100-octane aviation gasoline should suddenly slump. As the program appears now, however, the demand for 100-octane aviation gasoline will rise and there appears to be a genuine need for more alkylation units.

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Powdered Catalyst Used In New Cracking Process

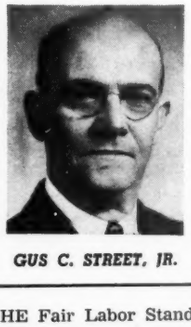
NEW YORK, Feb. 11.—Development of a continuous catalytic-cracking process was announced today by W. S. Farish, president, Standard Oil Co. (New Jersey), and Frank H. Howard, president, Standard Oil Development Co. They also announced that three 12,000-bbl.-per-day units are under construction by Standard of New Jersey at Bayway, N. J., Standard of Louisiana at Baton Rouge, La., and Humble Oil & Refining Co. at Baytown, Tex. At least one of the plants will be in operation this year and others will depend on effect of the national-defense program on deliveries of construction material. Another company, unnamed by Mr. Farish, will build a unit.

This process differs from existing catalytic cracking in that the catalyst moves in cycle from the reaction chamber to the regenerative unit, whereas in the other catalyst is stationary, involving purging and regeneration. In the new process charge in vapor state and powdered catalyst are introduced into the same chamber and the mixture, following sufficient time for reaction, moves to the cyclon separator. The product goes to a fractionator and used catalyst to a regenerator. Regeneration is accomplished with heated air in a manner similar to that in which cracking takes place with used catalyst in role of charge and air in role of regenerated catalyst. The system requires no pumps for moving charge or catalyst, which is accomplished by controlled difference in densities of vapors in catalyst and regeneration chambers.

In making motor gasoline, the new plants will charge gas oil or reduced crude and, with indicated yield of 50 per cent, will produce 6,000 bbl. of gasoline per day. The gasoline will have octane of 78-82 A.S.T.M.

Mr. Farish declared that all Jersey's patent rights dealing with catalytic cracking and with hydroforming as well as licensing rights in these fields had been acquired by the Standard Catalytic Co. Arrangements have been made for the licensing of these patents through Universal Oil Products Co. and M. W. Kellogg.

Wage Law Imposes Definite Duties on Management



GUS C. STREET, JR.

The language of the Fair Labor Standards Act is not sufficiently clear for a layman to be sure of its requirements. The oil industry has shown its willingness to comply with the law, but asks that its phraseology be interpreted in terms that mean something to those who are responsible for compliance with the law. This article is an effort to clear up some hazy points, which have proved puzzling to management.

By GUS C. STREET, JR.
Dallas, Regional Director, Wage and Hour Division, U. S. Department of Labor, for Texas, Arkansas, Oklahoma, and New Mexico

THE Fair Labor Standards Act, commonly referred to as the Wage and Hour Law, was enacted by the U. S. Congress, effective October 24, 1938, for the purpose of correcting conditions in interstate commerce, born of low wages and long hours, which imperiled the working and living conditions of millions of low-bracket-income workers, and permitted unscrupulous and unfair economic competition in industry by employers who were callous enough to disregard humane considerations and who were willing to prosper through the misery of underpaid and overworked workers.

What are the requirements of the Fair Labor Standards Act? One is that you must pay employes engaged in interstate commerce or producing goods for interstate commerce not less than 30 cents an hour until 1945, when this minimum wage will become 40 cents an hour. Another is that no such employe shall work more than 40 hours during any workweek, unless he is paid time and one-half his regular rate of pay for each hour worked in excess of 40. A third is that accurate records must be kept, adequate to show compliance with the wage and hour provisions. Fundamentally this is all there is to the Wage and Hour Law.

I call your particular attention to the words "regular rate." It does not mean minimum rate. Many employers have been of the opinion, and some still have the idea, that as long as they pay their employes more than the statutory minimum, 30 cents an hour, and whenever they pay such employes for overtime an amount in excess of 45 cents an hour for each hour worked in excess of 40, they are in compliance with the law. But, they may be—and, again, they may not be. For instance, if an employe regularly receives $2 an hour for work he performs within the permissible number of hours under the Wage and Hour Law, when such employe is employed more than 40 hours in any 1 week, he must be compensated at the rate of $3 per hour for each hour worked in excess of 40.

As the majority of those who read this article will not be lawyers, I desire to refer to a well-established construction of law. Where the purpose of a statute is to remedy the conditions of the people and to promote their health and well being, that statute is to be interpreted in its broadest application, and when such a statute, within itself, contains any exemptions, such exemptions are to be construed most strictly, because those very exemptions deprive some of the people of the remedies which the act seeks to give.

Before passing over the matter of exemptions, I think it well to discuss the exemption granted bona fide executives, administrative and professional employes, and outside salesmen as those terms are defined by the administrator.

The test of an executive is that he meet six requirements established by the administrator. He must meet all six—not five of the six. First, he must be in charge of an establishment or a recognized department thereof; second, he must customarily and regularly direct the work of other employes; third, he must have the authority to hire or fire other employes, or his suggestion as to such given considerable weight; fourth, he must customarily and regularly exercise discretionary powers; fifth, he must be compensated on a salary basis of not less than $30 per week; and, sixth, his hours of work of the same nature as that performed by nonexempt employes must not exceed 20 per cent of the number of hours worked in the workweek by the nonexempt employes.

Definition of Administrative Employe

To qualify for the administrative exemption, an employe must, first of all, be compensated for his services on a salary or fee basis at a rate of not less than $200 per month, and must meet one of the three following requirements: First, he must regularly and directly assist an employe employed in an executive capacity, where such assistance is nonmanual in nature and requires exercise of discretion and independent judgment; or, second, perform only general supervision, responsible nonmanual office or field work, which requires the exercise of discretion and independent judgment; or, third, his work must involve the execution under only general supervision of special nonmanual assignments and tasks directly related to management policies involving the exercise of discretion and independent judgment.

Exemption of professional workers is granted employes engaged in predominantly intellectual work, varied in character as opposed to routine mental, manual, mechanical or physical work, and requiring the consistent exercise of discretion and judgment in its performance, and of such a character that the output produced and the result accomplished cannot be standardized in relation to a given period of time, and whose hours of work of the same nature as that performed by nonexempt employes do not exceed 20 per cent of the hours worked in the workweek by the nonexempt employes, and whose work requires knowledge of an advanced type in a field of science or learning as distinguished from a general academic education and from an apprenticeship and from training in the performance of routine mental, manual, or physical processes; or, whose work is predominantly original and creative in character in a recognized field of artistic endeavor; and who are compensated for their services on a salary or fee basis at a rate of not less than $200 per month (a licensed lawyer or doctor is exempt, irrespective of salary).

What Is an Outside Salesman?

An outside salesman is exempt if such an employe is employed for the purpose of, and who is customarily and regularly engaged away from his employer's place of business in (1) making sales; or (2) obtaining orders; and whose hours of work of the same nature as that performed by nonexempt employes do not exceed 20 per cent of the hours worked in the workweek by such nonexempt employes.

A cautious employer should analyze the duties of an employe in respect to the several exemption definitions under the above categories, in order that there shall be mutual agreement between the employer and the employe that the latter is, or is not, entitled to the exemptions which may be claimed. Bear in mind that employes working in these groups are the higher-paid employes as a general rule, and an employer should be very careful in applying the definition for claiming exemptions. Otherwise an employe may allege in the future that he did not, in fact, qualify for the exemptions, and he may claim restitution of back wages due him for overtime for which he has not been properly compensated.

For the sake of emphasis I repeat that while it is prudent to make such an agreement, the agreement cannot supersede the actual facts.

In Section 6 of the act it is provided that every employer shall pay the statutory minimum wage to "each of his employes who is engaged in interstate commerce or in the production of goods for interstate commerce." It thus becomes an individual matter as to the nature of the employment of the particular employe. Some employers in a given industry may not be subject to the act at all. Other employers in an industry may be subject to the act in respect to some of their employes and not others; still other employers in the industry may be subject to the act in respect to all their employes except those specifically exempt by the later provisions of Section 13(a).

Interstate commerce, of course, primarily involves the crossing of state lines. If a product moves from Oklahoma to Texas, from Louisiana to Arkansas, from any state to another state, it is "goods in interstate commerce." Employes are

covered by the Wage and Hour Law if they are engaged in the production of goods which the employer "hopes, intends, or has reason to believe" will move in interstate commerce.

"Goods" means goods, merchandise, products, commodities, or articles or subjects of commerce of any character, or any part or ingredient thereof, but it does not include goods after their delivery into the actual physical possession of the ultimate consumer, other than a producer, manufacturer or processor thereof.

Oil and gas and their products, practically without exception, move in interstate commerce, or are produced with the hope, intention or belief that they will so move. That is the obvious and basic principle of the industry. You don't drill an oil well just for the fun of it, or merely to supply the local neighborhood around that well. You are not engaged in agriculture and cannot have agricultural exemption. The exemption given fishermen does not apply to you. To make a long story short, the oil and gas industry, as an industry, is not included in any of the exemptions, and what you have to do under the law is to observe the wage and overtime requirements of the act.

Record-Keeping Regulations

The act also requires that certain records be kept by the employer. You can appreciate the importance of the record-keeping regulations, because if you did not keep records, it would be difficult for you to prove that you were complying with the law. We do not specify the form in which records must be kept, just so that they show the name and address of each worker, the hours worked each workday and each workweek, the total wages paid each workweek and the date of payment. When overtime is worked it must be recorded and the record must show the earnings at the regular hourly rate of pay for each workweek, and the extra earnings for overtime.

In your industry, oil and gas activities are subject to numerous classifications, both as to the nature of the business and the duties performed by individual employes. For example, there are drilling companies, producing companies, refining companies, and oil-well-servicing and supply companies; there are drillers, roughnecks, roustabouts, drivers, pumpers, and office workers, to name only a few.

The key to whether any of these employes are entitled to the benefits of the act is whether they are engaged in interstate commerce or in the production of goods for interstate commerce, or in any process or occupation necessary to the production of goods, which, either in their original form or as parts or ingredients of other products, move outside the state of production. In our opinion, among employes within the coverage of the act, because they are engaged in processes necessary to the production of oil, are employes of geophysical survey units, employes building derricks, and employes engaged in drilling for oil, even though no oil is produced.

Rufus G. Poole, assistant solicitor in charge of opinions and review, in the Washington office, has written as follows:

". . . Our opinion has consistently been that oil drillers are within the coverage of the act when their employer has reason to believe that the resulting oil, if any, will move in commerce. We have also expressed the opinion that employes of geophysical survey units are engaged in a process or occupation necessary to the production of goods for commerce within the meaning of Section 3(j). We have stated that knowledge as to structural formations and the like which is furnished by geophysical units, has become almost universally an essential prerequisite to investment by the industry in any productive sites or operations. I believe the reasoning in that opinion is sound. Certainly, the erection of drilling rigs is indispensable to the production of oil. In fact, it may be said that these activities are universally an essential prerequisite to productive operations. Moreover, regardless of whether employes engaged in such work are physically employed in the actual drilling for oil, the courts may hold that such activities are so integrally connected with the actual drilling by which oil is produced as to be inseparable therefrom.

"We do not believe any conflict exists between this position and the opinion expressed in Paragraph 12 of Interpretative Bulletin No. 5. It is our position that the erection of the rig is an integral part of the drilling operations and inseparable therefrom for the purpose of determining whether employes so engaged are entitled to the benefits of the act. The drilling of an oil well in and of itself constitutes a production of goods, and employes employed either in such drilling or in operations so closely connected therewith as reasonably to be considered a part thereof appear obviously to be as truly engaged in the production of goods as the employe employed in pumping oil from the completed well. Moreover, Section 3(j) of the act defines 'produced' as 'manufactured, mined, handled, or in any other manner worked on in any state.'

Washington has ruled that oil drillers are within the coverage of the act when their employer has reason to believe that the resulting oil, if any, will move in commerce. The oil and gas industry is not included in any of the exemptions to the law

Preparatory Operations

"An oil derrick is erected solely to the end of conducting the subsequent drilling operations as a direct result of which the oil is to be produced. When it is considered that such a derrick when once erected cannot conceivably serve any other productive purpose, it becomes apparent that the construction thereof is properly to be regarded as an integral step in the actual drilling operations. On the other hand, while an enterprise in constructing a factory building may plan to produce specific types of commodities, the utility of the building certainly is not limited to the production of the commodity originally contemplated. There are numerous instances in which, because of economic factors such as fluctuations in the demands for various factory products, plants have been renovated, new machinery installed, and commodities entirely different from those originally contemplated have been produced. A consideration of this obvious distinction urges us to the conclusion that the local contractor who constructs a building in which goods for commerce are to be produced, as compared with the contractor who constructs an oil derrick, is a step removed from the actual productive operations, and on that ground we feel that it is reasonable and proper to distinguish the two situations. We believe the distinction we have drawn should resolve difficulties concerning employes engaged in clearing land, digging pits, filling pits, and in building earthen fire walls. . . ."

One of the difficult problems in the oil industry involves pumpers who are required to stay on the lease 24 hours a day. An interpretative bulletin covers that situation. I have been asked many questions about this problem, and this is substantially what I have replied: We know, the employe knows, and the employer knows, that it is impossible for an employe to work 24 hours a day

(Continued on Page 30)

Importance of Two California Discoveries Yet Undetermined

By L. P. STOCKMAN

Whether California's record of over a year and a half without an important new field has been broken by either the Oak Canyon or the Union Avenue discoveries remains to be seen. Both wells are small producers but may point the way to better results.

LOS ANGELES, Calif., Feb. 11.—Two new fields were discovered in California within a few days of each other last week but it will take another well or two in each area to determine definitely their importance. Both were finished several days ago but, because production was small and showed a relatively high cut, official completion was delayed. Hancock Oil Co., large independent producer, refiner and marketer, recorded the first discovery by completing 1 Roberts in the Union Avenue district of Kern County, pumping 100 bbl. per day, and Western Gulf Oil Co. followed suit within a few days by finishing 1 Lechler in the Newhall district of Los Angeles County, pumping 100 bbl. daily. The district discovered by Hancock Oil Co. is expected to be officially designated as the Union Avenue field and the accumulation found by Western Gulf Oil Co. will be designated as the Oak Canyon field.

Oak Canyon Discovery

No. 1 Lechler, the discovery well in Oak Canyon, is located on Hasley anticline in the Newhall-Castaic region which is the most promising spot in California at the present time. This area, which is leased almost solid, was brought into the limelight a few months ago when R. E. Havenstrite completed a substantial producing well on the Del Valle anticline. Earlier discoveries in this area were Rancho San Francisco in the Newhall-Potrero area and the Aliso Canyon field.

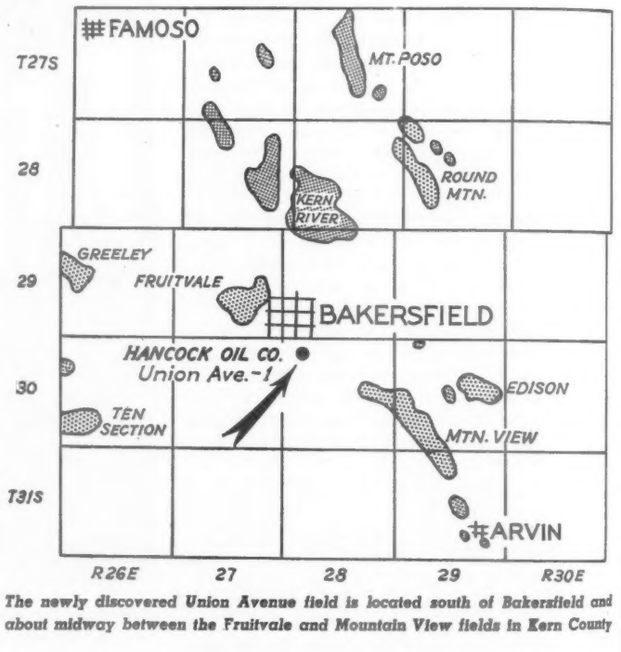
The relatively high gas-oil ratio of the Del Valle discovery well stimulated a leasing campaign that was recently climaxed when Barnsdall Oil Co. bid $50,000 cash and a 25 per cent royalty, plus $250,000 out of 5 per cent of production for a lease on 1,200 acres of Los Angeles County's jail farm. Barnsdall also acquired an option on an additional 1,200 acres of the 2,400-acre jail farm for $500,000 and a royalty of 25 per cent of all oil and gas produced.

Since the Modelo has been found highly productive and in some sections of the district approximates 4,000 ft. in thickness, additional discoveries in this section of the state may be anticipated. A detailed description of the Santa Clara River synclinorium was outlined by David Wosk in The Oil and Gas Journal of October 17, 1940, under the title of "Future Oil Possibilities of the Newhall-Castaic District."

Union Avenue Discovery

Hancock 1 Roberts, discovery well in Union Avenue, is located in 6-30s-28e, about midway between Fruitvale and Mountain View. Production tests 15.4 gravity and while the well came in cutting 8 per cent mud and 2 per cent water it has since cleaned up to about 2 per cent. The well was drilled to a depth of 5,599 ft. and a 7-in. water string cemented at 5,358 ft. The cement was then drilled out to 5,340 ft. and the casing perforated opposite Santa Margarita (upper Miocene) oil sand at 5,275-5,315 ft. The Kern River series and Chanac of Pliocene age apparently were barren, although the latter is productive in Fruitvale, about 4 miles west of Union Avenue. The discovery well is located on a 50-acre lease surrounded by an additional 400 acres lying on both sides of Union Avenue. The well is located on the edge of the 160-acre Casa Loma subdivision and thus the field may later be subjected to town-lot development.

Hancock Oil Co., realizing the possibility of town-lot development, will endeavor to work out a 10-acre spacing program with other operators. This is particularly necessary as a 40-ft. zone will not sustain intensive drilling. No. 1 Roberts is located close to Union Avenue, a thoroughfare that bisects the city of Bakersfield and which is a continuation of Highway 99. It is located about 3 miles from the center of Bakersfield, the county seat of Kern County. The extent and location of the accumulation in the Union Avenue field will remain conjectural until additional drilling is undertaken but it is safe to assume on the basis of previous drilling that the productive area will be north of the discovery well.



The newly discovered Union Avenue field is located south of Bakersfield and about midway between the Fruitvale and Mountain View fields in Kern County

There has been a number of dusters drilled in the Union Avenue area, the most recent of which was Richfield 1 Union Avenue. This well, which was abandoned at 10,427 ft., was drilled in 1939. The log shows top of the Chanac at 3,412 ft., top of the Santa Margarita at 5,190 ft., top of the Wicker at 6,725 ft. and top of the Vedder at 9,665 ft. It was located south and west of 1 Roberts, also in Section 6. Western Gulf Oil Co., then operating as Pacific Eastern Oil Co., tested the Union Avenue area in 1928, but failed to develop commercial sustained production. This company drilled four wells south of 1 Roberts in Section 6 and one well to the east in 5-30s-28e. No. 1, located along the east line of Section 6, had gas and actually produced some crude oil, but failed to hold up and was later abandoned as unproductive. Other small wells have been completed around this area only to be abandoned later due to water trouble or depletion of the oil sand. For this reason the real value of 1 Roberts is not very clear at this time.

Western Gulf 1 Lechler was brought in pumping 100 bbl. of 22.5-gravity oil cutting 20 per cent daily from the Modelo formation of Miocene age. This well has failed to clean up and the company is considering the advisability of reentering the hole for remedial work. It was carried down to 2,442 ft., but was plugged back to 2,415 ft. and the hole was cleaned out to 2,408 ft. A total of 141 ft. of 5¾-in. gravel-packed liner including 59 ft. of perforated was then landed at 2,408 ft. Production has shown a wide variation during the past several days and, as it was noted during bailing operations prior to completion that considerable sand entered the hole, it is possible that the plug may be defective.

The shallow depth at which this Modelo oil sand was found in 1 Lechler was somewhat surprising although it was known that the Modelo was coming up to the north. Western Gulf Oil Co. had expected to drill to about 5,000 ft. before finding a Modelo zone comparable with the Sherman zone found by Havenstrite on the Del Valle anticline to the south. If 1 Lechler can be converted into a commercial well by a remedial job, Western Gulf will drill another hole to test out production possibilities in the lower Modelo but if the water trouble persists, the present well will be deepened.

This acreage was acquired several months ago from Burnoel Oil Corp., which has considerable acreage in the Newhall-Castaic area. The vendors retain an overriding royalty interest. Considerable drilling is expected soon in the Newhall-Castaic district. Barnsdall, Aztec, Universal Consolidated and Sound are planning development.

Two New Directors Elected To Humble Company Board

HOUSTON, Tex., Feb. 11.—Two men holding key executive positions with Humble Oil & Refining Co. were elected directors at the annual meeting of stockholders held here February 10.

David Frame, general superintendent of production, and David B. Harris, manager of industrial relations, are the new directors. They were made board members to fill the vacancy created by the death of S. A. Giraud and to grant a request by Harry C. Wiess, president, for expansion of the directorate.

Increasing costs experienced by the oil industry magnify the depressed level of product prices, in the opinion of Mr. Wiess, who presented a review of 1940 operations and a summary of 1941 projects.

There was no particular elaboration in Mr. Wiess' remarks but he referred to higher taxes, increases in the cost of steel and the advance in wage scales. Depression of prices existed throughout the year driving the base price of gasoline to the lowest average level in recent years.

The new Hawkins field in Wood County, Texas, is the only major field discovered in the country last year, Mr. Wiess said, and added that Humble owns approximately 80 per cent of the indicated productive acreage. Major refinery-construction plans for 1941 include addition of a fluid catalyst gas-oil cracking unit to meet the demand for improved octane quality of motor gasoline and further expansion of alkylation facilities necessary to meet increased requirements caused by the national-defense program. Hines H. Baker, who recently assumed temporary charge of the manufacturing and marketing division succeeding the late Mr. Giraud, was elected vice president in charge of these departments.

The company's board now consists of R. L. Blaffer, chairman; Mr. Wiess; E. E. Townes, vice president and general counsel; James Anderson, John R. Suman, L. T. Barrow and Messrs. Baker, Frame and Harris, all vice presidents in charge of various phases of operations.

Other officers are R. E. Seagler, general attorney; H. K. Arnold, secretary and assistant treasurer; Paul Millsaps, assistant secretary and assistant treasurer; H. B. Fox and Charles E. Kugler, assistant secretaries; Gay Carroll, comptroller; J. K. Vaughan, assistant comptroller; George E. Cooke, assistant secretary and assistant treasurer; C. F. Carroll, assistant treasurer; H. C. Huder, cashier; B. P. Barrett, Jr., and T. C. Bronson, assistant cashiers.

Drilling Contractors Complete Association Organization

ORGANIZATION details have been completed by the American Association of Oilwell Drilling Contractors, a group formed last November at Chicago. Three standing committees have been appointed, regional directors have been designated for the eight major divisions of the country, and nine directors at large have been selected.

J. E. Brantly, Los Angeles, Calif., and Dallas, Tex., president of Drilling & Exploration Co., is president of the general association. Harry L. Edwards, Houston, Tex., president of Harry L. Edwards Drilling Co., is vice president at large; Warren S. Churchill, Tulsa, president of Arrow Drilling Co., is vice president for rotary drilling, and John J. Klise, Wooster, Ohio, president of Kemrow Drilling Co., is vice president for the cable-tool section. C. J. Paine, Dallas, Tex., partner in F. B. Paine Drilling Co., is secretary-treasurer.

The executive committee is composed of Messrs. Brantly, Edwards, Churchill, Klise, and Paine in addition to the three following contractors: Arch Rowan, Fort worth, Tex., Rowan Drilling Co.; Leslie Fain, Oklahoma City, Okla., Fain Drilling Co., and Will I. Lewis, Mount Vernon, Ill.

Charles L. Rider, Dallas, Drilling & Exploration Co., Mr. Fain, and Mr. Paine are members of the finance committee.

The publication committee is composed of Mr. Rowan and Mr. Paine, and Ed Fox, Tulsa, Hisson Drilling Co.; William McBee, Dallas, M. J. Delaney Drilling Co., and Crawford Fullilove, Shreveport, La., R. E. Allison Drilling Co.

Regional directors are listed below:

Pacific Coast.—Walter Buaas, Bakersfield, Calif., Taft Well Drilling Co.

Permian Basin.—C. J. Davidson, Fort Worth, Davidson Drilling Co.; George Cree, Pampa, Tex., Cree & Hoover.

North Central Texas.—J. J. Moran, Wichita Falls, Tex., Moran Brothers, Inc.

Central Mid-Continent Basin.—A. S. Ritchie, Wichita, Kans., McPherson Drilling Co.; Glenn Campbell, Tulsa, Campbell Drilling Co.

Cretaceous and Tertiary Basins.—F. H. Brown, Shreveport, F. H. Brown Drilling Corp.

Gulf Coast Region.—E. B. Rubesamen, San Antonio, Tex., Trinity Drillers, Inc.

North Central Paleozoic Basin.—Walter G. Tschudin, Salem, Ill., Pioneer Drilling Co.

Appalachian Region.—Wallace E. Haput, Coudersport, Pa., Acme Drilling Co., and Mr. Klise.

Directors at large are: R. A. Stacy, Tyler, Tex., and Shreveport, La., Delta Drilling Co.; M. J. Delaney, Dallas, M. J. Delaney Drilling Co., and Messrs. Lewis, Rowan, Fain, Brantly, Paine, Edwards, and Churchill.

New Wilcox Sand Discovery In Montgomery County, Texas

HOUSTON, Tex., Feb. 11.—Superior Oil Co. of California 1 McWhorter, a wildcat located in the Magnolia area, Montgomery County, Texas, is opening a new Wilcox sand field on the Texas Gulf Coast as it was flowing an estimated 75 to 100 bbl. of 36-gravity oil while testing through the drill stem from perforated casing at 8,930-35 ft. The well is testing through ¼-in. choke on bottom and ½-in. choke on top and working pressure is 2,350 lb. Location is in the T. Nichols Survey, about 12 miles due west of the Conroe field.

Gulf May File Motion To Dismiss F.T.C. Complaint

WASHINGTON, D. C., Feb. 10.—The Gulf Refining Co. last week indicated it would file a motion to dismiss the Federal Trade Commission complaint in which it is charged with unfair disparagement of competitors' lubricating-oil products. If the commission decides to grant the motion, the case will be terminated. If it is not granted, Gulf will begin presenting its testimony at hearings soon in Pittsburgh, Pa.

The commission concluded its side of the case last week by presenting Robert Hardy, of the National Bureau of Standards, who testified that experiments on reclaimed oil revealed it contained no substances detrimental to good lubrication.

The F.T.C. charged that Gulf sought to injure the business of competitors by inducing automobile service-station operators not to sell reclaimed lubricating oils on the grounds they were undesirable and inferior to Gulf products.

Detroit Enters Litigation Against Columbia Gas & Electric Co.

WASHINGTON, D. C., Feb. 11.—Detroit has entered Supreme Court litigation as "a friend of the court" and is attempting to help sever any connection between Columbia Gas & Electric Co. and the Panhandle Eastern Pipe Line Co. Detroit obtains its natural-gas supply partly through Panhandle Eastern's system.

The suit was to have been argued this week.

Detroit has taken the position that lower prices for gas may result from severance of Columbia and Panhandle Eastern relationship.

Paul A. Krause, Detroit counsel, filed a brief in which he said the city had two sources of natural gas and that it was "obvious" that so long as Columbia "controls both sources of supply there will be no competition between them and this is obviously to the disadvantage of consumers."

"Detroit," the brief added, "is now served by Texas gas delivered through the Panhandle Eastern Pipe Line as far as Dana (near the Illinois-Indiana line) and from Dana to Detroit by wholly-owned subsidiary of Columbia Gas, namely, Michigan Gas Transmission Co."

The present litigation is a continuation of action started in 1935 by the Department of Justice. A consent decree was entered in 1936. A new plan proposed by the defendants was approved in January by the federal District Court in Delaware. The latest Supreme Court action contests the plan approved by the Delaware court.

Oil-Burner Shipments for 1940 Increase 22.9 Per cent

WASHINGTON, D. C., Feb. 11.—Oil-burner shipments in 1940 totaled 264,232 units, an increase of 22.9 per cent from 215,030 burners for 1939 and 89.8 per cent greater than the 1938 total.

The burner manufacturers whose data are included in reports by the Department of Commerce, produce approximately 89 per cent of the total value of the output for the entire industry.

These statistics refer to oil burners and units consuming fuel oil of commercial standard No. 1 grade, or heavier, used for application to central-heating plants for homes, apartments, office buildings, theaters, churches, and similar buildings; to industrial process equipment such as heat-treating furnaces, industrial ovens, and for generation of steam for power. The statistics do not include burners used in ranges, stoves, water heaters, and space heaters.

Standard Oil of Ohio Will Enlarge Refinery Facilities at Four Points

TOLEDO, Ohio.—Standard Oil Co. of Ohio is making rapid progress on its expansion program which includes catalytic polymerization plants at Cleveland and Lima, Ohio, and at Latonia, Ky. Completion of the program is tentatively scheduled for May 1.

Another phase of the program covers expansion of storage capacity by 400,000 bbl., raising the total at Toledo to 1,000,000 bbl. First phase of the storage-expansion program at Toledo involving construction of tanks to handle 240,000 bbl. will be completed by the end of February.

Authorize Action for Acquisition Of Gas-Distribution System

The necessary action for acquisition of a city gas-distribution system was authorized by the Little Rock City Council last week. The Arkansas capital is served by the Arkansas Louisiana Gas Co. at the present time. The council has been informed by the Louisiana Nevada Transit Co. that it would like to extend its Arkansas gas-pipe-line system to Little Rock.

STATE CAPITALS...

CALIFORNIA

SEVERAL BILLS have been introduced into the state legislature that are designed primarily to reorganize the state Land Commission which controls state-owned oil properties. One of these bills would permit the state to drill on public-owned land or potential productive acreage. Under present law it is mandatory that the highest bidder on public lands offered for lease be allowed the right to drill and produce such property on a royalty basis. Should this proposed bill be enacted it would mean that if the competitive bids submitted by oil operators be considered too low the state itself would prospect on the property. This bill has been submitted for the purpose of preventing any possible collusion on the part of oil companies in submitting bids rather than a desire on the part of state officials to enter the oil business. Another proposal has been introduced which would prohibit the state being sued for title to oil or gas that has been withdrawn unless the state gives its specific permission. Another bill pending in the legislature would make it legal to engage in lateral drilling to take care of possible horizontal drilling on state property.

NEW MEXICO

THE STATE CONSERVATION COMMISSION has approved a voluntary plan for repressuring the Loco Hills field of southeastern New Mexico. The program, a voluntary one of the operators, will entail the expenditure of about $200,000 for a gas-repressuring plant. It will be the first project of its kind in New Mexico.

State Land Commissioner H. R. Rodgers has predicted the ultimate recovery for the field will be twice what it would have been without this method of conserving the driving force for the oil. It is estimated that 90 per cent of the gas to be repressured would be wasted otherwise.

TEXAS

THE TEXAS HOUSE OF REPRESENTATIVES this week refused to extend the state's oil-proration law, based on market demand, and passed a motion by voice vote to postpone action on the matter until April 1. The present law expires automatically September 1, 1941.

Opponents of the motion to delay action argued that the house would invite federal oil control if it failed to extend the proration law and claimed that one of the chief arguments for federal control is that the Texas oil policy is not permanent. In the past, extensions of the law have been for 2-year periods.

Supporters of the postponement motion, however, frankly admitted that they would delay action on the extension bill until the legislature had an opportunity to find out whether the oil industry would agree to additional taxes.

"I want the oil people of the state," said Rep. G. C. Morris of Greenville, "to help us raise some money for the old people and social security before we continue their economic security for all time to come."

Some discounted the danger of federal control, saying that Texas could force other oil states to observe production control by threatening to release its own tremendous potential production.

The extension bill now before the house was introduced by Rep. Gene McNamara. It would continue the market-demand law without any time limit.

Some representatives of the oil industry at Austin became pessimistic on the outcome of events after proration-law deferment. They were particularly disappointed in the apparent attitude of the legislature to use conservation-law enactment as a medium of bartering for acceptance by the industry of a heavier tax load.

The house has passed the bill extending unchanged Texas' participation in the interstate oil compact for 2 years and this particular act now awaits only senate approval and the governor's signature to make it a law.

WASHINGTON

GOV. C. C. DILL HAS RECOMMENDED to the legislature now in session at Olympia, Wash., establishment of a bonus of $100,000 to be paid to the individual or company developing commercial oil production within the state. If the governor's recommendation is accepted, the Washington bonus would be the highest offered by many nonproducing states for development of the petroleum industry within their borders. Gov. Harlan J. Bushfield of South Carolina, who recommended a $25,000 bonus to that state's legislature, is doubtful that it is sufficient to be of material value in attracting exploration.

OKLAHOMA

PRELIMINARY EFFORTS have been launched at Oklahoma City, Okla., to establish a permanent policy by the Corporation Commission relative to well-spacing regulations. Action was launched to counteract a threat of a general breakdown which developed recently when the commission granted an exception to the general practice.

Many operators support the contention that a general state-wide spacing rule should be promulgated by the commission since none exists in regulations as now constituted.

There is no minimum-spacing rule in Oklahoma. Under present conditions with demand apparently exceeding available supplies, there is a tendency to modify spacing practice, particularly in fields where economic inducements are most attractive. The attractions consist of relatively liberal allowables and existence of a ready market for production.

Many applications are pending with the commission seeking approval on 10-acre spacing units. The applications have been filed with increasing volume in recent weeks. Efforts to establish a definite and final rule on spacing are directed at the present toward minimum of 330 ft. from the property lines and 660 ft. between wells.

HANDLES TEXAS OIL BILLS . . .

LESTER CLARK, representative from Breckenridge, Tex., is chairman of the house oil and gas committee. All Texas oil legislation passes through his committee

MISSISSIPPI

MODIFICATION OF THE 40-ACRE spacing rule in Mississippi will be necessary if petitions now pending with the state Oil and Gas Commission are granted. J. F. Barbour, Jr., Yazoo City, is among the petitioners seeking permit to drill on a tract of 2.25 acres in the Tinsley field. Operators and others interested in the Tinsley field are opposing abridgment of the spacing rule contending that one exception is an invitation to abandonment of regulations on density of drilling.

Gov. Paul B. Johnson, chairman of the Mississippi commission, is said to favor elimination of drilling restrictions.

THE MISSISSIPPI OIL AND GAS BOARD has deferred action on application for permits to drill on small tracts in the Tinsley field of Yazoo County. Also deferred was action on an application to suspend the 40-acre spacing rule for the field's development. Permits were asked to drill on a 5-ft. width of county right-of-way, held by Yazoo County for road-building purposes. Opposition of offset land owners and offers to unitize by operators of offsetting property are expected to solve the dispute and prevent suspension of the 40-acre spacing rule in the field.

MICHIGAN

STATE CONSERVATION DEPARTMENT members are considering petitions to conduct an auction of oil and gas-lease rights on about 12,000 acres of state-owned land. Acreage proposed for leasing includes 6,000 in Ogemaw, 4,000 in Gladwin, 1,000 in Arenac, and lesser amounts in Clare, Montcalm, and Osceola counties.

MICHIGAN'S SUPREME COURT, which early in January reversed a Midland County Circuit Court ruling and declared entirely valid the Porter oil field royalty pool, has been petitioned for rehearing of the case. The high court Thursday took under advisement briefs and counterbriefs filed in connection with the petition, but did not set a date for a decision. The January opinion released approximately $1,000,000 to pool members.

NEBRASKA

A SEVERANCE TAX of 2 per cent on Nebraska produced crude oil is proposed in a bill introduced in the legislature at Lincoln by Sen. Walter Raecke, of Central City, Neb.

Three per cent of the revenue derived from the oil tax would be applied to administration and the remainder would go to the temporary state school fund.

Nebraska currently produces 2,500 to 3,000 bbl. daily from the Falls City area in the southeastern part of the state. The western part of the state has received an intensive lease play during the past few months.

The OIL AND GAS JOURNAL

PRODUCING REFINING NATURAL GASOLINE PIPE LINE

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Expand—Not Contract

With large numbers of their employes being called for military service and numerous extraordinary demands on their organizations assured for the future, many oil company managements are wondering if they are justified in carrying on their usual research and development activities.

The attitude of some draft boards and reserve corps has not been helpful. Because they have not been informed of the essential part that petroleum must play in the defense plan and are not familiar with the industry's technical ramifications, they have misunderstood claims for deferred military classifications.

As a result, many young men are voluntarily joining the military services although obviously their contributions to national defense, due to their special training, would be greater had they stayed in the laboratories, the fields and the refineries.

That this industry is prepared as is no other, is a reflection of the fact that managements long ago realized the importance of devoting a part of their total effort to fundamental and practical research.

Basic scientific studies have been made extending from exploratory methods through the manufacturing operations. Geological, engineering, equipment and other concerns serving the oil industry have been given every encouragement to perfect new methods and tools which add to the industry's operating efficiency.

Improved products have come because chemists have never been content with what they knew about the properties of petroleum and because operators are constantly perfecting their manufacturing processes.

Without this systematic and continuous investigation of petroleum, this industry would be mired in the operating practices of a previous century. Its vital and necessary contributions to twentieth-century progress would never have been made. The defense program would have more serious bottlenecks than those with which it is confronted in other industries.

The assumption that the petroleum industry has gone as far as it can in technical advancement is ridiculous as we now know a similar statement—made by a government observer—was, 25 years ago.

Several thousand of the best trained in this industry are devoting their entire time to research and development work. The industrial significance of part of this work will not be known for 5 to 15 years but it is certain to be as important as anything that has been accomplished in the past.

Turning to immediate problems, the exploration departments must devise means to find new and larger reserves—more hidden than in the past. Methods must be perfected to produce oil economically below 15,000 ft.

Tremendous strides have been made in secondary-recovery operations in certain areas but their application needs to be greatly extended or large quantities of oil in proven fields will never be brought to the surface.

Refiners with their improved gasolines have enabled manufacturers to increase horsepower and reduce weight but engines have been designed which will require still better motor fuels. Catalytic refining and many other manufacturing developments are in their infancy.

Petroleum research gave this country synthetic rubber when it had to have it and large-scale production of explosive materials is under way at a fraction of the first World War cost. Petroleum chemists know that the possibilities in this field of synthesis have only been touched.

And so it is in every division of petroleum operations. The future holds far more than the past, provided operators continue to look forward and not to the rear. This is a time to expand, not contract, in those things which have made this industry great.

Wage Law Imposes Definite Duties on Management

(Continued from Page 25)

continuously. The prudent thing to do is for the employe and the employer to get together and evaluate the number of work hours to be required of the employe. Now, actually, you cannot predetermine facts. So it should be understood that if, in the case of an emergency, it is required that longer hours be worked, the employer will be notified of such excess hours within 24 or 36 hours. But, even though you are this cautious, you are still bound by the facts if the facts differ from those set out in the purported predetermination.

It may be that you require the pumper to be on the lease with the idea of preventing your equipment from being stripped. In that case, he is actually working as a watchman. After all it is the actual facts that will prevail, and you cannot change them by agreement.

An educational campaign alone is insufficient. Inspectors of our division go into each establishment which we have reason to believe is engaged in interstate commerce or in the production of goods for interstate commerce, inspect the activities of the establishment, examine the records, and from this examination, inspection and analysis, determine whether the establishment is complying with the law. Formerly, due to limited personnel, we inspected only establishments against which a complaint had been filed. If we ascertain that an establishment is violating the law, we may invite the employer to correct his errors and comply in the future. If an employer has inadvertently violated the law and makes restitution to those workers who have not been paid the legal wage for hours worked and overtime, and agrees to comply with the law in the future, it may be possible to close the case without further action. However, we advise the employer that we do not have the power to impair or prejudice the rights of any employe which he may have under the law. If violations are flagrant and willful, and especially if they involve falsification of records, the case is turned over to the litigation section for court action, or to the Department of Justice. The penalty for violation which the courts may impose is a fine up to $10,000, and a prison sentence, as well as a fine for a subsequent offense.

Application for Redress

In addition to any action the division may take, the employe himself may independently obtain redress. I call your attention to the following section of the law:

"Section 16(b). Any employer who violates the provision of Section 6 or Section 7 of this act shall be liable to the employe or employes affected in the amount of their unpaid minimum wages, or their unpaid overtime compensation, as the case may be, and in an additional equal amount as liquidated damages. Action to recover such liability may be maintained in any court of competent jurisdiction by any one or more employes for and in behalf of himself or themselves and other employes similarly situated, or such employe or employes may designate an agent or representative to maintain such action for and in behalf of all employes similarly situated. The court in such action shall, in addition to any judgment awarded to the plaintiff or plaintiffs, allow a reasonable attorney's fee to be paid by the defendant, and costs of the action."

An important decision with regard to the application of the Wage and Hour Law was made recently by U. S. District Judge James V. Allred, former governor of Texas, in an employe suit brought by a night watchman in Corpus Christi, Tex., for recovery of $882.44, unpaid wages due under the law. Judge Allred's judgment awarded the plaintiff $1,964.88—that is the $882.44 unpaid wages, and an additional equal amount as liquidated damages, plus $200 as attorney's fees for the plaintiff. The defendant, the General Export Iron & Metal Co., junk dealers, Corpus Christi, tendered payment of the actual wages due, $882.44, but Judge Allred said in his opinion:

"I find nothing in the act relieving an employer from this liability (double the amount of unpaid wages and overtime) under such circumstances. Section 16(b) provides that any employer who violates this law shall be liable, not only for the unpaid minimum wages and unpaid overtime, but for 'an additional equal amount as liquidated damages' and for reasonable attorney's fees."

I hope this will bring home to each reader of this article, who is covered by the act, the fact that it is of vital importance to him to be certain that he is complying with its requirements.

DEATHS

WILLIAM HENRY HULSE died recently near Dina, Alberta, aged 54. A native of Pennsylvania, he drilled in that state, and later in Burma and the Montana fields, and was active in the East Central Alberta areas.

JOHN F. HAYDEN, 69, independent oil producer, died following a sudden stroke at his home in Tulsa February 7. He had not been in good health in recent months. At one time Mr. Hayden was head of the land department of the Texas Co. Later he formed a partnership with the late Roger Kemp, but when this company dissolved, Mr. Hayden operated as an independent. His widow and a son survive.

NORMAN DAY, president of the Pennzoil Co. of California, died February 9 at his home in Los Angeles, Calif. Death came suddenly and unexpectedly. Mr. Day was one of the best-known figures in the oil industry on the West Coast and helped build one of the best distribution systems in that section of the country. In 1914 Mr. Day and L. H. Johnson founded the Pennzoil Co. of California, with the latter as president. Following the death of Mr. Johnson 2 years ago, Mr. Day assumed the presidency.

WILLIAM MOYAR, 86, pioneer Venango County, Pennsylvania, oil man, died at his home at Rouseville, near Oil City, February 1. After working for several years in the Venango and Bradford fields he purchased production at Kaneville and in 1881 formed a partnership with S. P. Siple which was continued for 22 years. In 1894 he formed the Oil City Drilling Co. and the Rouseville Drilling Co. He later extended his interests to Oklahoma and aided in organizing the Jane Oil Co. and also served as president of the Midland Oil & Drilling Co. of that state. He resided in Oklahoma from 1908 to 1912 and returned to Venango County. He leaves his widow and five children.

JAMES A. DONAN, 44, advertising and sales promotion manager of the Standard Oil Co. of New Jersey, and resident of Montclair, N. J., died suddenly February 3, at a New York hospital. Mr. Donan was stricken as he left his office at the close of work and died shortly after reaching the hospital.

Mr. Donan, who was born in St. Louis, had been with the Standard Oil Co. since 1920, when he was employed as an editorial assistant. Subsequently he became editor of the official publication of the company's sales department, and in 1929 was made advertising manager of the Standard Oil Co. of New Jersey. In 1932 his duties were enlarged to include the Standard Oil Co. of Pennsylvania, and in 1933 he assumed the advertising managership of the Standard Oil Co. of Louisiana and the Colonial Beacon Oil Co. as well. Sales promotion work was placed in his charge in 1935. Mrs. Donan and three sons, James, Anderson, and Holland, survive him.

ROY JENKINS, 67, oil operator in the Southwest, died February 7 at his home in Dallas, Tex. Death was attributed to a stroke he suffered a week earlier. Mr. Jenkins was a founder and the president of the Jenkins Oil Corp., the Washington Oil Corp., and affiliated concerns. These companies were formed with the discovery of oil in East Texas. The Jenkins company drilled the fourth well. The widow and a son survive.

●

C. J. Tucker Elected Head Of North Texas Association

WICHITA FALLS, Tex., Feb. 11.—C. J. Tucker, president of the Tucker Oil Co., Wichita Falls, Tex., will be installed as the new president of the North Texas Oil and Gas Association at its annual meeting here March 1. Mr. Tucker was selected by the association's board to head the organization this year.

Other officers of the North Texas association who will be installed at the March 1 meeting are J. T. Harrell, president of the City National Bank, first vice president, succeeding A. R. Dillard; Fred Sehmann, secretary-treasurer of Petroleum Producers Co., second vice president, succeeding T. J. Waggoner, Jr., and D. G. Gray, reelected executive vice president.

Six new directors were chosen. They are H. B. Dudley, J. C. Jennings, W. H. Peckham, Alvin A. Horwitz, R. Clay Underwood, and Ben H. Rankin of Graham.

Dee R. Lauck President Of Kansas Independent Body

WICHITA, Kans., Feb. 11.—The Kansas Independent Oil and Gas Association will be headed for the next 12 months by Dee R. Lauck, Wichita, Kans., operator. Mr. Lauck, a member of the firm of Lauck & Moncrief, succeeds William L. Ainsworth, also of Wichita.

Gear Stoddard was elected vice president of the Wichita district and Ralph Nicholson of Ellis, and John Denman of Sedan, were reelected vice presidents of the western and eastern districts, respectively.

James Davis, Jr., Wichita, was reelected secretary, and John Harwood of Wichita was named treasurer.

THE MARKETS*

CRUDE OIL: Long-range preparations for the movement of Texas oil to middle western refineries is an added indication that crude markets are attaining a stronger position. Activity of refiners in arranging crude supplies for the entire year has relieved some of the depressed areas to the extent that little oil is now available in the open market.

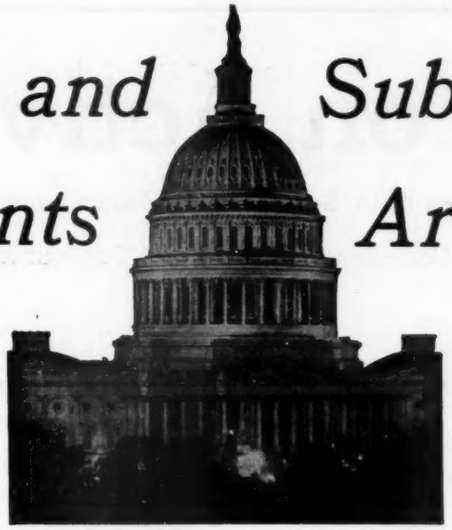
REFINERY: Tone of the motor-fuel markets east of the Rocky Mountains has improved over the past 10 days. Mid-Continent and Gulf Coast refiners have elevated their ideas on tank-car and cargo prices approximately ⅛ of a cent in dealing with resellers. Gasoline prices are steady to strong in the Pennsylvania refinery district and East Coast prices have stiffened slightly.

TANK-WAGON AND POSTED-DEALER: A general gasoline advance of 0.2 to 0.9 cent per gallon was posted at several New York and New England cities the first week in February. Approach of the spring season is causing suppliers to offer stiffer resistance to price buyers and the spot market has responded proportionately.

FINANCIAL: High side of the oil security market yielded to further pressure last week. Average of 30 representative stocks for the week ended February 8: High, 23.06; low, 22.39; close, 22.88. Week ended February 1: High, 23.70; low, 22.56; close, 22.68.

*Detailed information in Market Section.

Pipe-Line and Submerged-Oil Developments Are Imminent



By HENRY D. RALPH

WASHINGTON, D. C., Feb. 11.—New government moves affecting the oil industry are imminent, and in spite of the official secrecy which pervades Washington these days it is apparent that developments can be expected very shortly.

President Roosevelt's letter to the House committee on interstate and foreign commerce suggesting an investigation of railroad opposition to the construction of gasoline pipe lines in the Southeast may touch off the entire pipe-line situation and bring into the open the many undercover controversies and rumors regarding possible government construction of pipe lines.

The subocean oil controversy is also coming to a head, and while Justice Department officials neither confirm nor deny it, there is good authority for the information that a suit will soon be filed asserting federal title to all submerged lands and the oil beneath them. At the same time the administration may make another legislative attempt to gain control of submerged oil by means of a bill recognizing private rights in current oil production but preventing further development except under federal permit.

New developments in production, procurement, and storage of aviation gasoline are also under discussion in the Defense Commission and the Army and Navy, and a military appropriation bill now being framed in the House is expected to provide for a considerable expansion of this program.

The president's letter to the House committee regarding the pipe-line situation was dated January 23 but was not released by Chairman Clarence L. Lea for 2 weeks, and then only after word of its existence had spread through the Washington grapevine system. The evident reluctance on the part of the committee to take up the pipe-line matter, coupled with Chairman Lea's noncommittal statement, strongly suggests that the committee is resisting administration pressure to recommend legislation for federal regulation of oil conservation or other aspects of the oil industry. Under House Resolution 290 of nearly 2 years' standing, the Cole subcommittee of this body has been investigating all phases of the oil industry but has actually confined itself to the Cole bill for federal control of production. The committee has until May to make a report, and it is significant that Representative Cole has not reintroduced the bill in this Congress nor have any additional hearings been scheduled. Hearings tentatively set for last December to consider defense aspects of the oil industry were canceled without explanation, and there is considerable doubt that any further hearings will be held. Rumor has it that the administration cannot find defense officials who will testify that immediate passage of the Cole bill is necessary for national defense.

The texts of President Roosevelt's letter and Chairman Lea's statement follow:

Letter From the President

My Dear Mr. Lea:

The Atlantic Coast area now is dependent upon ocean transportation for nearly its entire supply of crude petroleum and petroleum products. Present facilities for such transportation do not afford much leeway under normal conditions and very likely will prove inadequate in an emergency. It is in the interest of national defense to augment concurrently these facilities, especially if this can be done by private agencies without extra cost to the Government.

I have been informed by the government agencies concerned that the completion of one gasoline pipe line and the commencement of another to the southeastern states have been delayed by opposition from other carriers in interstate commerce. Although this situation ultimately might correct itself, delay in its solution will retard the completion of essential transportation facilities. If the matter is not settled before your committee resumes its investigations under House Resolution 290, as extended, I hope that it will be included in your hearings and that a solution thereto will be presented to Congress.

FRANKLIN D. ROOSEVELT.

Statement by Chairman Lea

I have requested information about the president's request from both sides to the controversy for the benefit of the committee. I have assured the president that the petroleum subcommittee, of which William P. Cole is chairman, will give proper consideration to the problem before that committee submits its report.

The committee will go into the facts with a view of determining whether or not there is or should be a legislative remedy provided to meet the situation suggested by the president. Should the inquiry of the committee convince us that the facts justify or require legislation, I assume an appropriate measure will be recommended to the House for passage.

The president evidently referred to the long-standing situation in Georgia where opposition of railroads and railway labor has prevented completion of a gasoline pipe line projected by the Gulf and Pure Oil companies from the Florida Gulf Coast toward Atlanta. The Georgia Legislature has refused to grant pipe-line companies the power of eminent domain to acquire rights-of-way, and as a result this line has been unable to cross railroad property. Similar opposition is said to be blocking a project of Shell Union and Standard of New Jersey for a gasoline line from the Baton Rouge, La., area to Charlotte, N. C., or other terminus in the western Carolina Piedmont area.

At the same time the Navy is much concerned over the dependence of its Atlantic fleet operations and of civilian needs in the Northeast generally on the tanker transportation of oil from the gulf area, and is very anxious that more pipe lines be built so that in case of war it would not have to convoy tankers along this route. Some Navy officials are understood to advocate construction of a Government-owned pipe line to carry fuel oil for Navy use from the Southwest to the Hampton Roads area or perhaps even farther up the Atlantic Coast. Officials of the Defense Commission contend that such a line would not be economic for either Navy or civilian use in time of peace and its usefulness in wartime would not justify the huge expense to the Government. While this proposal is presumably shelved, many government officials feel that more pipe lines should be built, either with private capital entirely or jointly with private and government money.

Some months ago Secretary Ickes made a proposal for construction of an additional pipe line, and while the nature and disposition of this proposal have never been revealed, one report has it that it embraced a crude-oil line to serve refineries to be built along the Atlantic Coast. There have also been rumors that the Government wanted a pipe line from the Mid-Continent to the Pittsburgh area, or even from Texas to New York.

On top of the concern of defense officials over the need for new pipe lines, private initiative is pretty well stymied by the Department of Justice antitrust suit against the A.P.I. and major oil companies which threatens to disintegrate the industry and divorce pipe lines from ownership by the majors. The anomaly of this situation was suggested by the Defense Commission last fall in its comments on the department's proposal to file the suit, but while a specific request for pipe-line divorcement was deleted from the suit it was filed anyway and in language leaving the divorcement question up to the court.

May Correct Itself

Should the Cole committee decide to hold hearings and investigate the whole pipe-line situation, it might do the industry a big service by laying bare the complicated underlying facts and building a framework for a constructive government policy. The chances are, however, that, as the president hinted, the Georgia situation may be corrected without action from Washington, or the mere publication of the president's letter may induce the railroads to withdraw their opposition to pipe-line construction.

While Congress is reluctant to intervene in state politics, several suggestions have been made to prevent railroads from blocking pipe-line construction. Since the federal Government has authority over interstate carriers, Congress could forbid one carrier to refuse right-of-way to another carrier, or it could provide that a certificate of convenience and necessity issued by the Interstate Commerce Commission would entitle one carrier to right-of-way through another.

The long-smoldering tide-lands controversy is also coming to a head, according to reliable leaks from the Department of Justice. The Navy feels it more imperative than ever to get control of lands between the low-tide mark and the 3-mile international limit and of oil deposits under these submerged lands. The latest plan is said to be a suit to be filed in the federal Court in the District of Columbia asserting federal title to all subocean lands, not just the oil lands off southern California.

Service on Active Fields

Hawkins Field, Southeastern Wood County, Texas

Compiled by The Oil and Gas Journal

Approved name
Hawkins field.

Geographic location
Southeastern Wood County, eastern Texas, in and north of the town of Hawkins.

Principal cities and towns near field
Hawkins—In the field.
Mineola—17 miles to the west.
Gladewater—16 miles to the east.
Kilgore—Approximately 30 miles to the southeast.
Longview—Approximately 29 miles to the east.
Tyler—Approximately 22 miles to the south.
Shreveport—Approximately 80 miles to the east.
Dallas—Approximately 98 miles to the west.

Location of supply houses
Ample oil-field supplies are obtainable in either Longview, Gladewater, Kilgore or Tyler, or almost any of the towns near the field They have all served as supply centers for the East Texas field.

Railroads serving the area
The Texas & Pacific Railroad runs through the town of Hawkins. Starting in Shreveport, it connects Marshall, Longview, Gladewater, Hawkins, Mineola, Dallas, Fort Worth, and West Texas points.

Trucking and hauling facilities
Adequate trucking and hauling facilities as well as teaming contractors may be obtained in Hawkins or any of the above-mentioned nearby towns.

Hotels and other accommodations
Hawkins, being a small town with a population of about 350 persons prior to the oil discovery, has very limited accommodations at present; however, new buildings and housing facilities are being constructed rapidly. Almost all neighboring towns have adequate cafe, restaurant and hotel accommodations.

Schools and churches
Churches of all denominations are found in almost all of the towns near the field. Elementary schools of excellent rating are available in nearby towns.

Electric power and gas companies
The electrical-distribution system of the town of Hawkins supplies all operations with electricity; however, the city does not have a gis-distribution system. Gas for drilling fuel is obtained by one contractor in the area from a dual-completion job on one of the townsite wells. A city gas-distribution system is expected to be constructed in the near future for the town of Hawkins.

DEVELOPMENT

Early development
Bobby Manziel, an eastern Texas independent operator, started 1 Morrison late in September 1940. It first showed for an oil producer in late October when it encountered broken saturation in the Woodbine sand topped at 4,802 ft. It was at that time correlated some 529 ft. higher than surrounding failures. Due to a large salt-water volume in the lower part of the sand section and a thin saturation zone, the well remained in the testing stages for almost 2 months. It was finally completed early in December for 128 bbl. of oil, net, through perforations from 4,910-16 ft. The crude was of low gravity, dark, and with a considerable sulfur content; however, it definitely indicated the presence of an oil field of some magnitude.

In the meanwhile two other tests were started. One was the discovery operator's 1 Bell, 1 mile northwest of Hawkins and about 2 miles south of the Morrison discovery, and the other was Jackson & Rotondi 1 Cobb, in the townsite of Hawkins. No. 1 Bell blew out as a wild gas well from the sub-Clarksville sand on Sunday, December 29. and was later ordered plugged without even reaching the Woodbine section. Also on Sunday, December 29, the townsite well, 1 Cobb, came in and on the following day was officially gaged at 363 bbl., flowing, in 3 hours from the Woodbine sand. This townsite well accelerated the growing wildcat play throughout Wood and Smith counties as well as the entire eastern Texas district.

Subsequent development
Humble Oil & Refining Co. entered the field the first of the year and staked locations for several tests on its large 13,000-acre block between the townsite well and 1 Morrison. Humble is also progressing rapidly at present toward completion of a field camp as a center for its developmental activities. New locations have been staked to the south, west, and east of Hawkins. There has been one failure drilled in the area since the start of the play, Johnson 1 Green, 2½ miles northeast of Hawkins, and two other outposts now being drilled are running low.

The Hawkins discovery launched a wildcatting program for virtually all of eastern Texas, the equal of which has not been seen in many years. Despite the fact that the early reports which rated the Hawkins strike proportional to a "second East Texas field" have been proven false, the discovery is, nevertheless, the most significant in the district since Talco and Sulfur Bluff.

Completions to date
Four oil wells. One is also producing gas from the sub-Clarksville sand level above the Woodbine sand section.

Present drilling operations
There are eight drilling wells and seven standing locations.

Method of allocation
The individual well allowables in the field are based 50 per cent on acreage and 50 per cent on per-well initial.

Present daily average production
The present field production is 300 bbl., divided among the four producing wells.

Spacing pattern
With about half of the drilling in the area at present either being or having been done in the townsite of Hawkins, well spacing is one of the prime factors in the development of the field. According to the field rules drawn up for the area, "the proration unit shall be 20 acres, and no acreage shall be assigned to a unit which is more than 1,050 ft. from a producing oil well. A tolerance of 10 acres on the last well on producing tracts of more than 20 acres shall be allowed where the size and shape of the tract so warrants. Where tolerance is allowed, no acreage shall be assigned to the unit of the last well which is more than 1,280 ft. from the well. Units which do not contain as much as 20 acres shall be considered as fractional units. Acreage units or fractions thereof, whether containing more or less than 20 acres, will be considered, for proration purposes, on the basis of the actual acreage assigned to the individual unit or fraction."

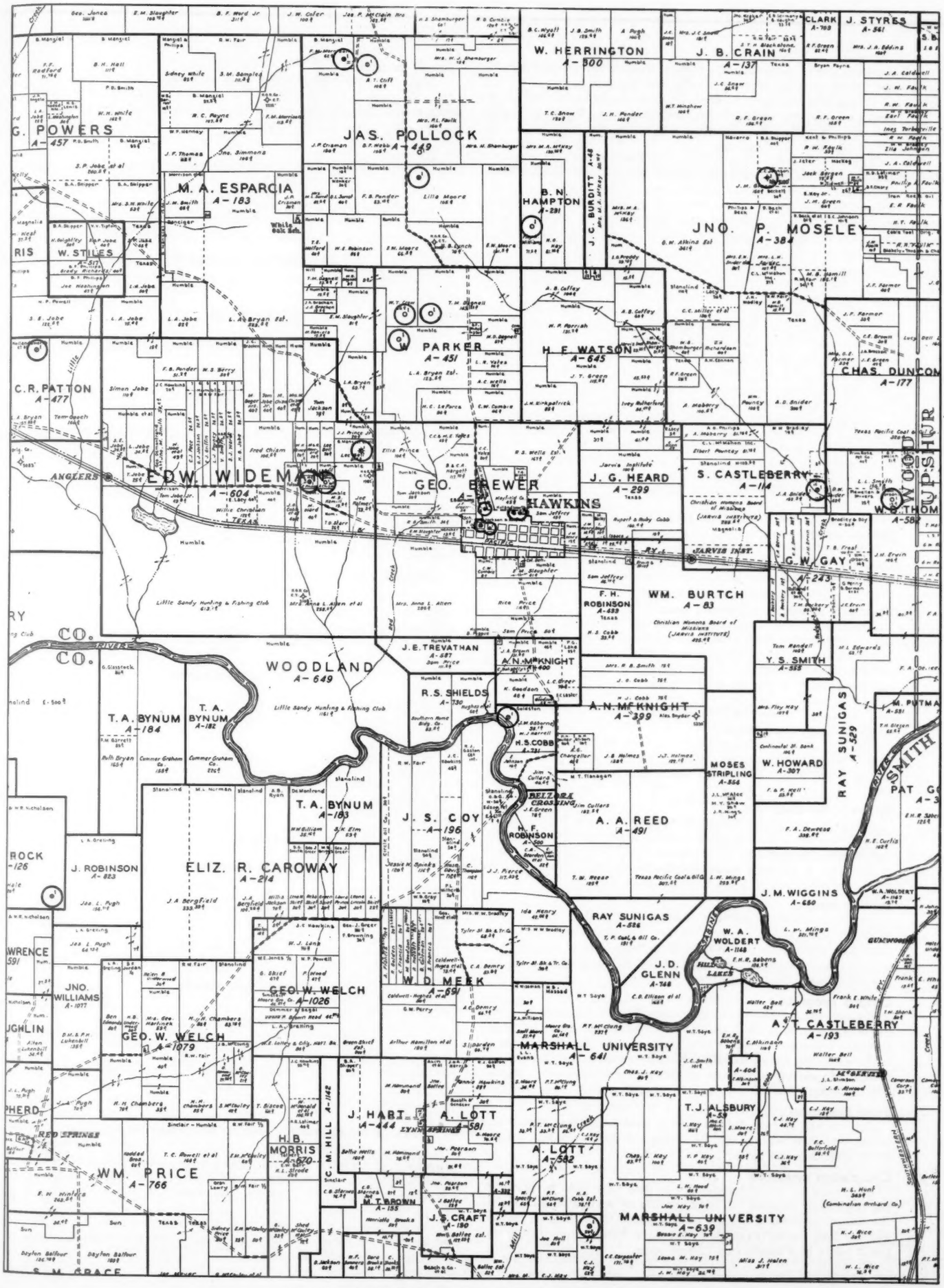
PRESENT OWNERS OF PRODUCING LEASES

Operator, address—	Wells
Bobby Manziel, Gladewater, Tex. (oil)	1
Hollandsworth Drilling Co., Longview, Tex. (oil)	1
Hollandsworth & Johnson, Longview, Tex. (oil and gas)	1
Jackson & Rotondi, Dallas, Tex. (oil)	1
Total	4

GEOLOGY

Method of field's discovery
Humble Oil & Refining Co. has for several years held a large block of acreage immediately north of Hawkins and has at intervals done considerable geophysical exploration work in the area. The discovery well, Manziel 1 Morrison, Pollack Survey, was drilled on Humble's geology, the operator holding only the 62-acre drill site under the discovery well in the immediate area.

General geology of field
The Hawkins field is located on an anticline elongated in a north-south direction. The peak of the structure is believed to be in, or near, the town of Hawkins, with a steep dip to the south and



Map of area underlain by Hawkins structure, Wood County, Texas Eby Engineering Co., Tyler

a gentler dip to the north. The present indicated limits of the field are 1½ miles south of the townsite and 3 miles north.

It was believed early in the play that the structure overlies a deep-seated salt dome, similar to those underlying Van and Chapel Hill. Recent drilling has added the possibility that the structure is complicated by faulting.

The sand is not regular and each successive well in the townsite has been completed in a slightly lower sand break in the Woodbine section and has yielded lower-gravity oil. The latest completion was for 25 bbl. an hour of 20° oil. This has led some geologists to believe that the sand shows signs of depletion and that this depletion is due to migration to other fields, possibly East Texas and Van.

As for the geological limits of the Hawkins structure, there are several very definite limiting markers. Some 2¼ miles northeast of the town and about 3 miles east and slightly south of the original Morrison discovery well is the first failure drilled since the play began. It is Johnson 1 Green, Mosely Survey, which was correlated 60 ft. lower than 1 Morrison, itself a low well yet a small producer. South of the townsite 1 mile Goldston 1 Osborne, Cobb Survey, is fishing lost drill pipe at 4,675 ft. with no Woodbine sand yet encountered. The top of the Austin chalk is 584 ft. lower than townsite wells, and it is not expected to make a producer.

About 5 miles southeast of the townsite is Flanagan & Nicholson 1 Hale, Brock Survey, in northern Smith County, which is 600 ft. lower on the Austin chalk than townsite wells. This test is also not expected to find production in the Woodbine sand.

The Hawkins structure, within these confining tests, embraces some 12,000 to 15,000 acres.

FUTURE DRILLING

Proven area

Conservatively figured and based only on the present outline of producing wells, the field embraces about 2,040 acres. This estimate, however, does not refer to the overall estimate of the semiproven acreage within the limits of the large structure itself.

Undrilled locations in proven area

Theoretically based on unified 20-acre spacing for the field, there are 98 undrilled locations in actually proven area. This number is a minimum, however, due to the fact that a great number of wells will be drilled on fractional proration units of much less than 20 acres, especially in the Hawkins townsite.

DRILLING CONDITIONS

Type of equipment used

Most of the now-active wells in the area are being powered by triple-boilered steam rotaries. Much of the equipment to be used in the field will be obtained from the readily accessible East Texas field.

Water in the field

Water for the first few wells in the townsite was obtained from a well sunk to a water-bearing sand at about 600 ft. Additional water wells will probably be drilled as needed. However, the town of Hawkins is laying a water-distribution system which will undoubtedly prove adequate for some townsite drilling.

Drilling mud

Drilling mud is no problem in the field, the mud being formed as the hole is made. The near-surface and even deep subsurface clays and marls form excellent drilling mud. Two of the townsite wells already completed and three of the active operations are being drilled with this natural mud.

Casing program

To prevent future cratering hazards from sub-Clarksville sand gas blowouts such as the Manziel 1 Bell, the surface string of 8⅝-in. casing is cemented to top of hole at about 1,600 ft. which is about 50 ft. below the top of the Midway shale section. The oil string is 15-lb. 5½-in. casing set through the Woodbine sand section. Completion is through perforations opposite the oil section.

Type bits used

An average of four fishtail bits is used in drilling to the top of the Woodbine section and an average of three rock bits is used for drilling into the sand.

Completion practices

The majority of the completions to date have been by perforating the casing opposite the most prolific oil section or sections in the Woodbine zone. Wells are usually gaged through ¼-in. chokes and the daily initial is calculated from the well's output during the last 6 hours of a continuous 12-hour gage.

Speed in drilling

Wells are completed into the tanks in about 15 days.

Cost of drilling

While several of the early wells in the area slightly exceeded the figure, it is believed the average cost per well will be about $15,000.

Drilling problems

The only drilling problem is the "gas kick" encountered in the sub-Clarksville sand. Blowout preventers are installed immediately after setting surface casing and when the sub-Clarksville sand is topped the drilling mud is substantially increased in weight. The sand section compels caution but is relatively easily handled.

PRODUCING PRACTICES

All wells with the exception of Manziel 1 Morrison, the original discovery well, are flowing through ¼-in. chokes.

GENERAL PHYSICAL DATA

Pressures

The average shut-in pressure on both tubing and casing is about 700 lb.

Gas-oil ratio

The average gas-oil ratio for wells is about 350 to 1. The maximum ratio is set at 700 to 1.

ANALYSIS OF REPRESENTATIVE SAMPLE OF CRUDE OIL FROM JACKSON AND ROTONDI 1 COBB, HAWKINS FIELD

(Intermediate-base crude)

Gravity, °A.P.I.	27.8
Flash	Below room temperature
Fire	Below room temperature
Viscosity (at 50° F.)	398
Viscosity (at 100° F.)	102
Pour point	0
B.s. and w., per cent	0.3
Sulfur, per cent	2.2
Salt, pounds per 1,000 bbl. of oil	46

GASOLINE AND KEROSENE DISTILLED THROUGH HEMPEL COLUMN

Cuts, per cent—	°F.	Gravity	Cuts, per cent—	°F.	Gravity
Overpoint	84	...	17.5	354	...
2.5	141	...	20.0	384	53.2
5.0	168	80.7	22.5	410	...
7.5	183	...	25.0	440	47.8
10.0	248	66.3	27.5	450	...
12.5	290	...	30.0	500	42.8
15.0	312	58.3			

SUMMARY OF DISTILLATION

	Per cent
Gasoline, vapor temperature 362° F., 63.8° gravity	18
Kerosene, vapor temperature 500° F., 46° gravity, 130 Tag. flash	12
Residue, 19.4° gravity, 315° flash, 350° fire, viscosity 89/122	68
Water	0.3
Loss	1.7

ESTIMATED TOPPING AND CRACKING YIELDS

Product—	Per cent
Gasoline, straightrun (368° E.P.)	18.0
Kerosene	12.0
Cracked gasoline	25.5
Fuel oil (11° gravity)	39.5
Gas and loss	5.0

GASOLINE CUT

Gravity, °A.P.I.	63.8

A.S.T.M. Distillation

	°F.		°F.
Initial	125	80 per cent	305
10 per cent	180	90 per cent	327
20 per cent	207	95 per cent	345
30 per cent	229	End point	368
40 per cent	245	Per cent over	98
50 per cent	260	Doctor test	Negative
60 per cent	271	Octane number	48
70 per cent	290	Lead, c.c. added to equal octane	75.5 3.5

KEROSENE AND RESIDUE

	Kerosene	Residue
Gravity, °A.P.I.	46.0	19.4

A.S.T.M. Distillation

	Kerosene °F.	Residue °F.		Kerosene °F.	Residue °F.
Initial	340	544	70 per cent	444	...
10 per cent	374	610	80 per cent	458	...
20 per cent	391	643	90 per cent	479	...
30 per cent	406	...	95 per cent	494	...
40 per cent	415	...	End point	513	...
50 per cent	423	...	Doctor	Positive	...
60 per cent	433	...			

DATA ON 330 END-POINT GASOLINE WHEN MAKING KEROSENE

	Gasoline	Kerosene		Gasoline	Kerosene
Per cent off crude	11	19	95	282	484
Gravity	71.0	50.0	End point	330	508
10 per cent at	149	315	Recovery	98	99
20	165	324	Color	30	25
30	175	342	Corrosion	Negative	Negative
40	186	362	Doctor	Negative	Positive
50	197	382	Octane No., motor method	57.5	...
60	207	401			
70	217	419			
80	229	428			
90	250	460			

Note: Insufficient gasoline for load-requirement rating.

International

U. S. S. R. . .

Refinery-Equipment Orders In U. S. Total $10,000,000

ORDERS from the U.S.S.R. for aviation-gasoline producing equipment totaling approximately $10,000,000 are in the hands of American manufacturers whose applications for license to complete the export shipments are pending action by the Department of State. This explanation of the U.S.S.R. refinery-equipment orders came from Washington last week in relation to the decree bringing all exports of oil-well and processing equipment under license control.

Applications have been accumulating in the State Department's division of export-license control since Under Secretary of State Welles, on January 21, announced the lifting of the "moral embargo." The U.S.S.R. had been barred as a purchaser of aviation-gasoline refining equipment at the start of the Russo-Finnish war. American refinery engineers were recalled from the U.S.S.R. when the Finnish invasion started, leaving parts of four isooctane plants there to be completed by Soviet workers.

Washington sources confirmed that Amtorg, the Soviet trading agency, in anticipation of the lifting of the moral embargo, opened negotiations for the refinery equipment at least 2 months before Mr. Welles revealed the modified policy. In a note addressed to Soviet Ambassador Constantine Oumansky, Mr. Welles advised that the department would notify the manufacturers of aircraft, refinery equipment and other materials under the export ban that the embargo no longer applied. The export-license control supersedes previous regulations on refinery-equipment exports.

Value of oil-field and refinery-equipment exports to Japan in December totaled around $500,000. In the same month, the U.S.S.R. bought field and other equipment not prohibited by the embargo valued at $800,000. In both cases, the purchases were abnormally high. Export-license control of all oil-field and refinery equipment will became effective February 10. The regulation was imposed, according to Washington information, to prevent transshipments to Germany.

Sweden . .

Sweden's Fuel Economy Suffers From Blockade

INABILITY to move normal supplies of petroleum through the British blockade in the Atlantic and Mediterranean and the hazards of shipping in the North Sea, which is mined by both belligerents, are causing drastic changes in Sweden's fuel economy.

Before the war, Sweden covered approximately 90 per cent of her requirements for petroleum through imports from countries from which she is at present shut off.

A slight increase in U.S.S.R. supplies is expected in exchange for larger Swedish deliveries of machine tools, heavy railway equipment and high-grade steel. A little petroleum may be received by way of Petsamo and perhaps through Germany. The Swedish oil economy, however, is bound to grow serious over a period of time. Rationing of gasoline and lubricating oils has been applied with increasing limitations from one month to the next, but the limit of possible compression in all probability has been reached.

An equally serious sidelight of the petroleum shortage is the increase in unemployment deriving from it. The number of people who have lost their jobs as a result of the present stagnation of the motor-car market has been estimated at approximately 160,000, by Swedish economic writers.

Mexico . .

An Early Settlement of Oil Expropriation Issue Sought

SIX months of conversations between the United States Department of State and the Mexican ambassador to Washington, Francisco Najera, have given rise to the hope of an early settlement between Mexico and the United States over the expropriation of American owned oil properties 3 years ago. This hope was expressed last week by Under Secretary Sumner Welles, who, at the same time, said that the State Department had not ordered United States oil companies to effect an immediate settlement.

Hope first arose when Pres. Manuel Avila Camacho recommended reorganization of the Mexican judiciary system early in December. It was believed that the new system would be likely to promote a conservative attitude in the new supreme court and thereby improve the chances of the oil companies. At that time the companies were protesting the court's $36,000,000 evaluation of their properties.

This hope was increased in January when Mexican interests, reportedly working in collaboration with the U. S. Government, were prepared to shut off oil shipments to Japan. It was reported that these interests might collaborate with an American plan to terminate oil exports to Japan if tension in the Far East increased.

There is no question but that the satisfactory solution of the oil problem would result in a major economic improvement for Mexico. Following the expropriation in 1938, Mexico arranged barter trade with Germany and Italy but this was suspended by the war. Mexico was then forced to seek new markets in the Western Hemisphere. The bulk of her new market was found in the United States which has been importing increasing quantities of Mexican products.. In the first 11 months of 1940 the United States took 2,175,572 bbl. of gas oil, distillate fuel oil, and diesel oil from Mexico against none in the corresponding 1939 period; 618,570 bbl. of residual fuel oil against 81,757 bbl. and 11,147,724 bbl. of crude oil against 4,819,895 bbl.

While this oil trade has benefited Mexico greatly, she has never recovered from the plunge of the peso following the 1938 expropriations. The peso dropped from an exchange rate of 3.6 to 1 United States dollar in 1938 to 6.0 to 1 in late 1939 and averaged 5.9 for that year. It has subsequently regained some of the lost ground but the cost of living has risen and wages have not.

The decline in the peso has also resulted in a less favorable foreign-trade balance for a country which is ill-fitted to cope with such a problem. In 1935, Mexico's exports, in terms of the American dollar, were double her imports, but in 1939 her exports were but 30 per cent greater. Equally severe on Mexico's domestic economy has been her inability to meet the technical requirements of producing and refining oil.

The United States now takes more than 75 per cent of all Mexican exports. With the European markets closed for the duration of the war, the importance of the United States market has increased to the point where it is a vital necessity. This fact is regarded as a contributing factor to the improvement in relations between the countries that may lead to an early oil settlement.

Argentina . .

Government Company Raises Crude Production 22 Per Cent

CRUDE-OIL production by Yacimientos Petroliferos Fiscales, the Argentine Government oil organization, increased 22 per cent in 1940 to a new high of 12,474,655 bbl. Y.P.F. produced 10,222,532 bbl. in 1939. Private oil companies in Argentina produced approximately 8,000,000 to 9,000,000 bbl. in 1940 but details on their operations for the complete year will not be available for a few weeks.

The new fields in the Province of Mendoza in the western part of the country accounted for much of the Y.P.F. increase in 1940. The Comodoro Rivadavia field continues as the major source of Argentina's crude-oil production.

Puerto Rico . .

Sales of Gasoline and Automobiles Attain Peak

PUERTO RICO'S purchase of gasoline from refiners in continental United States broke all records during 1940, totaling 934,400 bbl., or 11 per cent more than in the year before, according to a statement by the Puerto Rican Trade Council.

Sales of automobiles and trucks to the territory also were the highest on record, the council said, amounting to 5,061 units, a gain of 60 per cent compared with the year before.

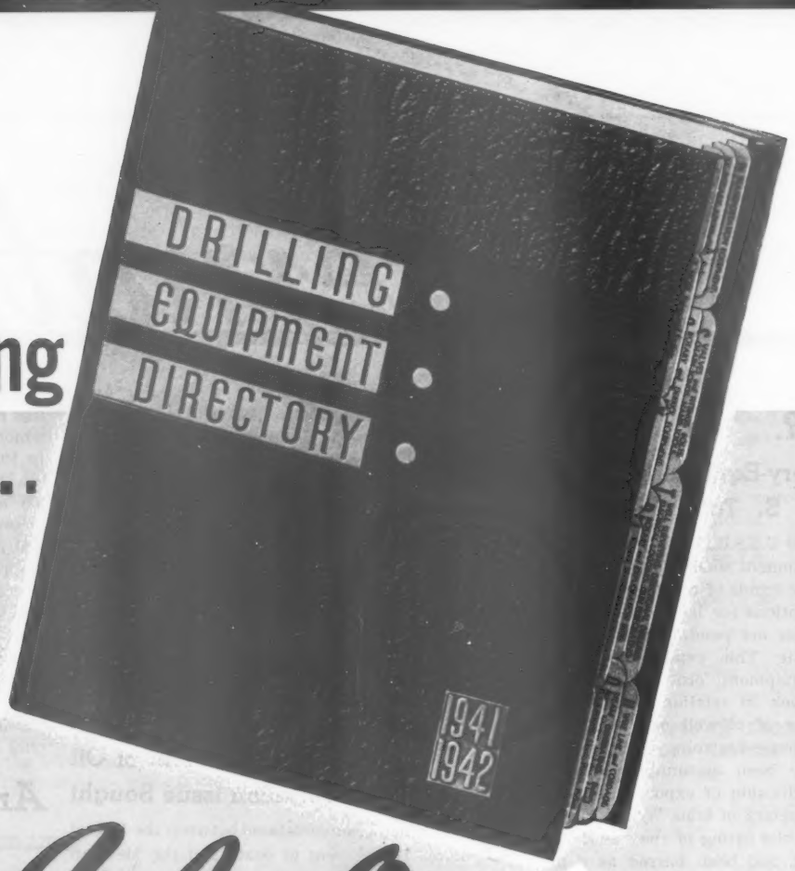
Uruguay . .

Latin - American Pact Involves Oil Movement

A CONVENTION "granting freedom of transport to locally produced petroleum over the regional system of pipe lines" was among the 26 pacts signed by Latin-American nations participating in the regional conference of River Plate countries which closed last week in Montevideo.

Delegates attending the conference were reported as having admitted that the success of their efforts depends to a large extent on the attitude of the United States toward suspension of the most-favored-nation clause.

You're Looking Straight at...



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Refinery Expansion

Plan Early Construction of Refinery in Yazoo City

YAZOO CITY, Miss., Feb. 11.—Construction of a 3,500-bbl. capacity refinery in Yazoo City, Miss., to process Tinsley crude is planned immediately by Paluxy Asphalt Co. of Dallas, Tex.

A long-term contract for crude oil has been arranged between the refining company and Union Producing Co., discoverer of the Tinsley field and now the principal producer. Paluxy Asphalt Co. has been operating a refinery at Mankins in Archer County, Texas. The company is headed by E. Constantin, Jr.

Cracking Unit and Treating Plant Added at Gainesville

Kimbell & Bohner, a Wichita Falls, Tex., group, has acquired a refinery at Gainesville, Tex., from Morrow & Murray of Dallas. The new owners are installing a cracking unit and treating plant involving expenditure of $75,000.

Pan American Holds 2-Day Meeting Of Executives and Sales Representatives

Refining, production, transportation, and sales executives of the Pan American Refining Corp., American Oil Co., and affiliated companies recently visited the company's Texas City, Tex., refinery where they inspected the new hydroforming unit. Following a tour through oil fields in the vicinity of Houston arranged by E. R. Turner, vice president of the Pan American Production Co. and Pan American Pipe Line Co., a bus took the group to the Texas City refinery where the plant inspection and explanation were arranged by D. J. Smith, vice president of the Pan American Refining Corp., and P. J. Sweeny, refinery manager.

Participating in the meeting at the refinery were Dr. Robert E. Wilson, president; E. R. Turner, vice president; J. M. Vetter, superintendent of land and geological department, Pan American Production Co.; A. J. Rabe, chief engineer, Pan American Pipe Line Co.; D. J. Smith, vice president; Mr. Sweeny, Dr. H. J. Broderson, general superintendent; H. H. Price, research director; R. L. Zimmerman, general foreman; J. B. Hamblen, general foreman; B. F. Baben, general foreman; W. F. Schneider, general foreman; Dr. P. L. Brandt, assistant director of research. Those attending the meeting are shown in the accompanying photograph.

Natural Gasoline

Warren Installs Sweetening Unit At Illinois Gasoline Plant

According to an announcement by H. W. Harts, of Warren Petroleum Corp., the company has completed the design and erection of a Perco solid-process-type copper-sweetening unit for its natural-gasoline plant at Salem, Ill. Warren has been operating other such units for several years at Galva, Kans., and Monument, N. M. The Salem unit will treat the entire output of natural gasoline and liquefied petroleum gas.

Natural-Gasoline Production In California Up Slightly

LOS ANGELES, Calif.—Natural-gasoline production in California during December totaled 49,206,595 gal., an increase of 686,309 gal. over November. There were 87 plants in operation with a combined capacity of 1,998,300,000 cu. ft. of gas daily in December.

Recycling News

Tristate Refiners to Hear Review of Recycling Work

KILGORE, Tex., Feb. 11.—The relation of recycling and refining and the position of the former operation in the petroleum industry will be discussed here February 14 by Emby Kaye of Tulsa, vice president of the Distillate Engineering Processes Co., at the regular monthly meeting of the technical group of the Ark-La-Tex division, Western Petroleum Refiners Association.

Recycling, a comparatively modern development in the petroleum industry, is constantly attracting more attention, and its products are becoming more competitive in refinery markets. Officials of the Western Petroleum Refiners Association felt that, in the light of these recent developments, a thorough discussion of recycling would be desirable and beneficial for refiners in the Ark-La-Tex area. The association's efforts to present this subject culminated when Mr. Kaye agreed to prepare the paper. In assuming this responsibility Mr. Kaye states: "I do so because I believe it is desirable for refiners in your area to have an understanding of the distillate situation and its place in the picture."

Texas Plants Recovered 22,357 Bbl. of Products in December

AUSTIN, Tex., Feb. 11.—Recycling and repressuring operations in Texas continued their increase in December, according to data released last week by the Railroad Commission in its regular monthly report.

Gas handled by recycling and repressuring plants totaled 1,234,554,000 cu. ft. for the month. Products recovered by the 32 reporting plants totaled 22,357 bbl. Recovered products included 7,647 bbl. of condensate, 12,247 bbl. of "gasoline," 569 bbl. of butane, and 1,207 bbl. of other products, including propane.

There were 243 wells connected to recycling and repressuring plants and the report shows 81 wells were used for injection purposes.

In December 1939, Texas had 21 recycling and repressuring plants and the recovery of liquid products amounted to 6,847 bbl. from the operation of processing 455,781,000 cu. ft.

There were 566 gas wells in Texas in December which produced varying amounts of condensate.

Natural Gas

Texas Natural-Gas Production Exceeds 4½ Billion Cubic Feet

AUSTIN, Tex., Feb. 11.—Production of natural gas in Texas for December totaled 4,596,014,000 cu. ft. daily, an increase of 89,625,000 cu. ft. over the November output.

Natural-gasoline plants, according to the Railroad Commission report, used 2,607,233,000 cu. ft. daily in December and liquid recovery amounted to 2,067,509 gal. daily, a decrease of 58,823 gal.

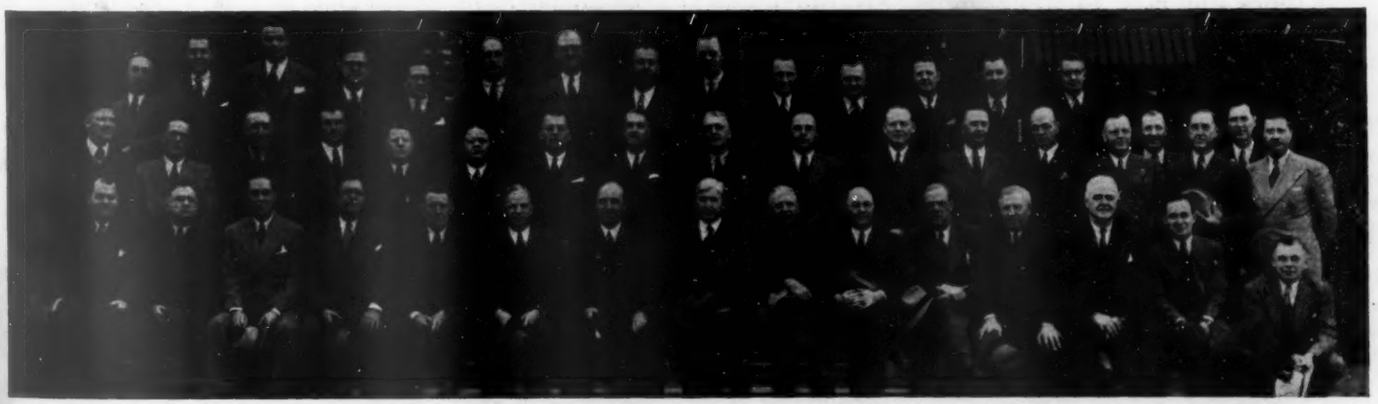
The number of plants reporting operations during December was 150, while during November only 144 reports were received.

Carbon-black production increased to 1,279,848 lb. in December, compared to 1,233,770 lb. in November.

Sales Increase of Natural Gas Boosts Revenues of Utility Group

Sales of natural gas in November totaled 125,663,800,000 cu. ft., according to statistics assembled from utility companies by the American Gas Association. Volume of sales last November was 6.3 per cent greater than for the same month of 1939.

Revenues for the month reached $41,143,900, a gain of 6.1 per cent over the preceding November. Customers for natural gas totaled 7,714,000.



Sales, refinery, and production executives of American Oil Co., Pan American Refining Corp., Pan American Production Co., and Pan American Pipe Line Co. at get-together sales meeting held in Houston and Texas City, Tex., on January 24 and 25, 1941. Front row: T. A. Aldridge; C. A. Skinner; J. N. Carney; F. A. Colonell; C. H. Wagner, general manager; D. J. Smith, vice president refining; Dr. R. E. Wilson, president; C. F. Hatmaker, vice president sales; E. R. Turner, vice president production; P. J. Sweeny, refinery manager; T. B. Scott; Dr. H. J. Broderson, general superintendent; J. P. McDonald; S. B. Schapiro; H. T. Rogers. Second row: J. B. Turk; G. R. Torborg; R. H. Tyler; C. F. Engle; E. F. Kalkhof; G. M. Whelan; T. B. Campbell; I. F. Pierce; L. H. Immler; J. J. Leu; W. A. O'Day; L. H. McMahon; M. I. Slagsvol; F. O. Sallee; J. B. Hamblen; J. M. Vetter; B. F. Baben; E. V. Hewett. Third row: Dr. John Klein; G. M. Glazier; E. A. Wahl; Joseph Katz; M. L. Schwartz; R. F. Dollinger; E. M. Howard; H. E. Jackson; C. R. Lund; B. E. Abercrombie; A. Aarlie; W. A. Stone; W. F. Schneider; E. W. White

PROGRAMS AND MEETINGS

Several Petroleum Papers on A.I.M.E. Program

Subject to last-minute changes, the program for the 154th meeting of the A.I.M.E. in New York, February 17-20, is now complete. Practically all technical sessions will be held as usual in the Engineering Societies Building.

The Petroleum Division program follows:

PETROLEUM DIVISION

Tuesday, 9 a.m.

Room 1001. Production Engineering.

Geology of the Jennings Oil Field, Acadia Parish, Louisiana—a Piercement-Type Salt Dome, by M. T. Halbouty, Merit Oil Corp.

New Developments in Cementing Practices, by C. P. Parsons, Halliburton Oil Well Cementing Co.

Geochemical Well Logging, by Leo Horvitz, Subterrex.

A New Geochemical Prospecting Method for Oil and Gas Fields—The Geodynamic Process, by Sylvain Pirson, Penn State College.

Some Problems of Horizontal Steady Flow in Porous Media, by M. P. O'Brien, professor of mechanical engineering; J. A. Putnam, University of California.

Tuesday, 2 p.m.

Room 1101.

Physical Theory of Darcy's Law, by M. King Hubbert.

Factors Influencing Wet Gas Recovery by Recycling, by Judson Swearingen, associate professor of chemical engineering, University of Texas.

Density of Natural Gases, by Marshall B. Standing and Donald L. Katz, assistant professor of chemical engineering, University of Michigan.

Control of Filtration Characteristics of Salt-Water Muds, by G. R. Gray, J. L. Foster, and T. S. Chapman, Humble Oil & Refining Co.

Mechanism of Fluid Displacement in Sands, by S. E. Buckley and M. C. Leverett, Humble Oil & Refining Co.

Wednesday, 9 a.m.

Room 604—Symposium on Oil Production, Foreign and Domestic. William W. Haynes, chairman; B. B. Zavoico, cochairman. The following program will be divided between morning and afternoon sessions according to time required for presentation and volume of discussion.

FOREIGN PRODUCTION

Argentina, Canada, Colombia, Cuba, Ecuador, Mexico, Peru, Russia, Venezuela. General summary of situation in Europe and Asia.

DOMESTIC PRODUCTION

South Arkansas, by Warren B. Weeks, Phillips Petroleum Co.

California, by V. H. Wilhelm, Texas Co.

Illinois, by Alfred H. Bell and George V. Cohee, Illinois Geological Survey.

Indiana, by G. F. Fix, state Conservation Department.

Kansas, by W. A. Ver Wiebe, University of Wichita.

Kentucky, by C. D. Hunter, Kentucky-West Virginia Gas Co.

Louisiana, North, by H. K. Shearer, Hunter Co.

Louisiana, South, by J. Brian Eby, consulting geologist.

Michigan, by Theron Wasson, Pure Oil Co.

Mississippi, by H. M. Morse, oil and gas supervisor.

Missouri, by Frank C. Green, Missouri Geological Survey.

Nebraska, by Eugene C. Reed, University of Nebraska.

New Mexico, by A. Andreas, Oil Conservation Commission.

New York, by C. A. Hartnagel, assistant state geologist.

Ohio, by Kenneth Cottingham, Ohio Fuel Gas Co.

Oklahoma, by Thomas Brownfield, Carter Oil Co.

Pennsylvania, North and Central, by Arthur C. Simmons, geologist and petroleum engineer.

Pennsylvania, South, by John T. Galey, oil and gas operator.

Tennessee, by Kendall E. Born, Tennessee Division of Geology.

Texas, East and East Central, by D. V. Carter, Magnolia Petroleum Co.

Texas, Gulf Coast, by Paul B. Leavenworth, Gulf Oil Corp.

Texas, North, by Lewis W. MacNaughton, DeGolyer, MacNaughton, McGhee.

Texas, North Central, by H. W. Imholz, consulting geologist.

Texas, Panhandle, by Henry Rogatz, consulting geologist.

Texas, South Central, by William H. Spice, Jr., consulting geologist.

Texas, South, by Michael T. Halbouty, consulting geologist and engineer.

Texas, West, by Peter P. Gregory, Yates Field Engineering Committee.

West Virginia, by David B. Reger, consulting geologist.

Rocky Mountains: Colorado, Utah, Wyoming, and Montana, by C. E. Shoenfelt, Petroleum Information, Inc.

Wednesday, 12:15 p.m.

Engineers' Club, Room 2. Executive Committee, Petroleum Division. Luncheon meeting.

Wednesday 2 p.m.

Room 604. Production (continued). B. B. Zavoico, chairman; M. T. Halbouty, cochairman. For program, see morning session.

Thursday, 9-11:45 a.m.

Room 501. L. F. Terry, chairman; S. A. Swensrud, cochairman. Economics. The following program will be divided between morning and afternoon sessions according to the volume of discussion.

The Validity of Competition in a Natural Resource Industry, by John D. Gill, Atlantic Refining Co.

The Outlook for Petroleum Prospecting, by E. DeGolyer.

World Consumption of Petroleum, by V. R. Garfias, R. V. Whetsel, and J. W. Ristori, Cities Service Co.

World Production of Petroleum Substitutes. (T. P. 1274, Jan. Pet. Tech.), by V. R. Garfias and R. V. Whetsel.

Some Factors in the Economics of Recycling. (T. P. 1304, Preprint), by Emby Kaye, Distillate Engineering & Processes Co.

Mineral Rights Assessments with Special Reference to Kern County Procedure, by Paul J. Howard, Kern County Assessor's Office.

Trends in Demand for Petroleum Products, by W. B. Case, Shell Union Oil Corp.

Thursday, 2 p.m.

Room 501. S. A. Swensrud, chairman; L. F. Terry, cochairman. Economics (continued). For papers, see morning session.

Thursday, 6 p.m.

Music room, Biltmore Hotel, Petroleum Division dinner. Speaker, Eugene Holman, director, Standard Oil Co. of New Jersey, on "Petroleum Transport Problems."

CALENDAR

February

AMERICAN INSTITUTE OF MINING AND METALLURGICAL ENGINEERS, Engineering Societies Building and Commodore Hotel, New York, N. Y., February 17-20.

KENTUCKY PETROLEUM MARKETERS ASSOCIATION, fifteenth annual meeting and convention, Brown Hotel, Louisville, Ky., February 18-19.

LIQUEFIED PETROLEUM GAS ASSOCIATION, INC., annual convention, Chicago, February 24-25.

AMERICAN PETROLEUM INSTITUTE, southwestern district regular spring meeting, Washington-Youree Hotel, Shreveport, La., February 27-28.

March

NORTH TEXAS OIL AND GAS ASSOCIATION, Wichita Falls, Tex., March 1.

AMERICAN SOCIETY FOR TESTING MATERIALS, Hotel Mayflower, Washington, D. C., March 3-7.

OHIO PETROLEUM MARKETERS ASSOCIATION, Deshler-Wallick Hotel, Columbus, Ohio, March 4-6.

PACIFIC COAST GAS ASSOCIATION, annual spring sales conference, sales and advertising section, San Francisco, Calif., March 6-7.

NATIONAL DIXIE DISTRIBUTORS, INC., Fort Worth, Tex., March 10.

AMERICAN PETROLEUM INSTITUTE, Pacific Coast District, Division of Production, regular spring meeting, Biltmore Hotel, Los Angeles, Calif., March 11.

INDIANA INDEPENDENT PETROLEUM ASSOCIATION, spring convention and refiners' and suppliers' exhibit, Hotel Severin, Indianapolis, Ind., March 11-13.

SOCIETY OF AUTOMOTIVE ENGINEERS, national aeronautics meeting, Washington Hotel, Washington, D. C., March 13-14.

OKLAHOMA UTILITIES ASSOCIATION, annual meeting, Tulsa, March 17-18.

OIL BURNER INSTITUTE'S NATIONAL OIL BURNER PROGRESS EXHIBITION, Commercial Museum, Philadelphia, Pa., March 17-22.

MID-CONTINENT CHAPTER, AMERICAN PETROLEUM INSTITUTE, spring convention, Herring Hotel, Amarillo, Tex., March 21-22.

OIL TRADES ASSOCIATION OF NEW YORK, annual meeting, Waldorf-Astoria Hotel, New York, March 25.

PACIFIC COAST GAS ASSOCIATION, annual spring technical conference, technical session, Los Angeles, Calif., March 27-28.

April

AMERICAN ASSOCIATION OF PETROLEUM GEOLOGISTS, twenty-sixth annual meeting, Rice Hotel, Houston, Tex., April 2, 3, and 4.

Oklahoma Section of A.I.M.M.E. Hears Recycling Discussion

Nearly 150 oil men and engineers from Oklahoma heard a panel discussion of "Gas Recycling and Distillate Recovery," presented at a meeting Monday night at Tulsa by the Mid-Continent section of the American Institute of Mining and Metallurgical Engineers. Four talks dealing with the different phases of the subject were presented by speakers and a round-table discussion of incidental problems followed their talks.

The subject of "Preliminary Investigation of Project" was discussed by Frank Lindeman, Jr., engineer for Stanolind Oil & Gas Co. "Organization and Selection of Equipment" was the title of discussion by W. B. Berwald, engineer for Ohio Oil Co. "Engines and Equipment" was the subject of a talk by D. K. Hutchcraft of Clark Engine Co. and "Plant Equipment" was covered in a talk by Jay Walker of the National Tank Co.

H. F. Beardmore, Amerada Petroleum Corp., arranged the program and presided at the meeting. Chairman of the Mid-Continent section of A.I.M.M.E. is P. E. Fitzgerald of Dowell, Inc.

Change Dates of North Texas Meet

The date of the annual meeting of the North Texas Oil and Gas Association, to be held at Wichita Falls, has been changed from February 22 to March 1, according to an announcement by D. G. Gray, executive vice president.

Threads on the kelly joint, or grief stem, receive considerable abuse and are protected by having a special sub which is easily removed for repairs when needed. The photograph shows a kelly being spun on the drill pipe while one roughneck watches the upper portion as it sways back and forth and the backup man watches the cathead man as he times his pull on the rope with the swing of the blocks

ENGINEERING & OPERATION

In This Section

FEBRUARY 13, 1941

CONDITIONS IN DEEP COASTAL WELLS PRESENT COMPLETION PROBLEMS
By Neil Williams ..... Page 42

Principal problems encountered in drilling below 11,000 ft. are high pressures, elevated temperatures, hot-salt-water flows and excessive sand in the drilling fluid. This article describes the methods used by one operator in overcoming these difficulties.

PIPE-LINE-STATION PRACTICES FOR DIESEL-ENGINE MAINTENANCE
By Paul Reed ..... Page 47

Similarity in the principles of operation of the different types of engines used for pipe-line pumping makes possible the use of a routine method of inspection, overhaul, repair and record keeping. Systematic methods make it possible for the master mechanics to know the exact condition of engines at all times.

KINETICS AND CHEMISTRY OF CRACKING HYDROCARBONS ..... Page 49

The first installment of a digest by Dr. R. Rosen of the articles written by M. D. Tilicheev which were published abroad and which deal with the cracking of hydrocarbons. The second and concluding part of the digest will appear in an early issue of The Oil and Gas Journal.

OPERATOR HAS WIDE CHOICE IN SELECTING PUMPING EQUIPMENT
By Harry F. Simons ..... Page 53

Today, more than ever before, the oil operator has a wide choice in the method to be employed for lifting oil from a well. A general presentation of some of the available types of pumping equipment is given in this article.

PIPE-LINE SUGGESTIONS ..... Page 48

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PROGRESS IN METALS—By W. L. Nelson ..... Page 59

Unusual Conditions in Deep Wells Present Completion

By NEIL WILLIAMS

Excessive quantities of sand, elevated temperatures and hot salt water combine with high pressures to make drilling of wells beyond 10,000 ft. at League City and Chocolate Bayou, Texas, very hazardous. This article describes use of 15-lb. per gal. mud, mud analyzer and mud centrifuge in helping to control adverse conditions.

IN several Gulf Coast fields in which development of productive sands at depths below 11,000 ft. has been undertaken within recent months, control and completion of wells have presented a number of new problems. Not only have high pressures been encountered, but high temperatures, hot-salt-water flows and excessive sand conditions have added to the difficulties of maintaining properly conditioned drilling mud to combat the pressures. Completion of wells at these depths has been complicated by the use of heavier muds which have been made necessary by the high pressure and unusual conditions which have had to be overcome.

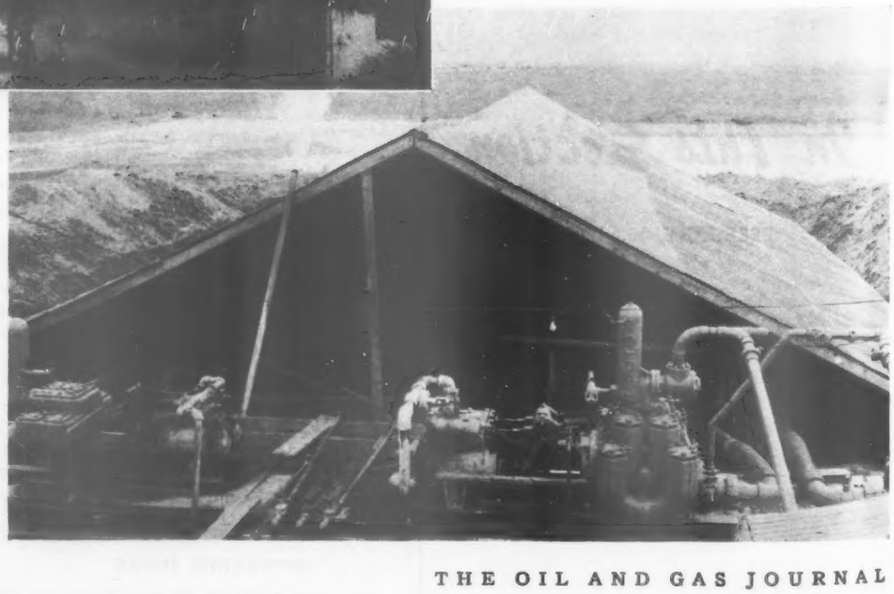
Particular reference is made to the League City field, Galveston County, and the Chocolate Bayou field, Brazoria County, Texas, where conditions have been unusually hazardous and troublesome. In both these fields, the principal operator is Phillips Petroleum Co., which has directed its efforts to the adoption of practices designed to provide more effective control over the high pressures and facilitate completion of wells in the ultra-deep sands. Success of these practices is attested in the recently ability of this company to negotiate the high-pressure sands at great depths in these fields, and complete producing wells in them, first at Chocolate Bayou, and very lately at League City.

Down to depths of 10,000 ft. in these fields, no exceptional difficulties are experienced in control and completion of wells that cannot be overcome readily with the exercise of reasonable precautions, in the way of providing heavy equipment and extra facilities for emergencies and keeping close watch on mud conditioning, that ordinarily are followed in development of sands at those depths in other fields. In the conditioning of drilling mud, weights of no more than 10.2 lb. per gal. have proved amply sufficient to meet all emergencies that have arisen in wells of no more than 10,000-ft. depth, and the control of mud at that weight and at desired specifications has involved no unusual problems. Only since development of horizons substantially below those depths has been undertaken and weighted-mud programs have been occasioned, have any undue conditions and difficulties been faced.

At League City, development of productive sands from 8,700 to 10,000 ft. has been going on for several years, and to those horizons Phillips Petroleum Co. has successfully drilled and completed a total of 20 wells without the loss of a hole. In undertaking development of the lower horizons, three tests have been started. These also were drilled through the 10,000-ft. horizons satisfactorily, but ran into trouble below those levels. Conditions encountered prevented the successful completion of the first two wells. The third test, however, through special precautions and practices, has been able to overcome the conditions and now is being completed in the lower horizons.

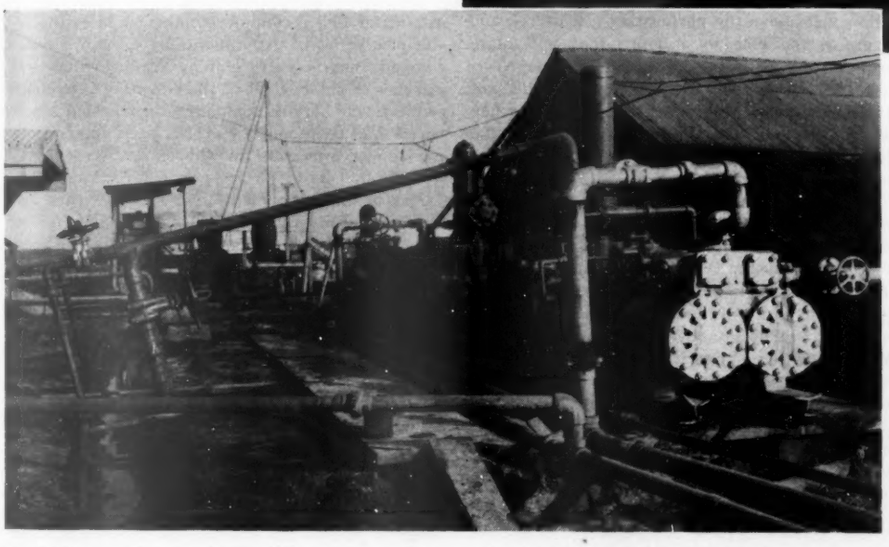
Test Reached 10,962 Ft.

The first of these three deep tests reached a depth of 10,962 ft., where it tried to blow out, sticking the drill pipe. It had been drilling with 11.5-lb. mud, which, under normal conditions, might have been expected to be adequate, but which, under the circumstances, proved insufficient to hold the pressures. The well was killed, but due to stuck drill pipe and hazards involved in cleaning the hole, it was completed through the drill pipe as



Left: Portable laboratory containing instruments and equipment used by Phillips Petroleum Co. for mud analysis and hydrocarbon-detection work set up at a drilling well in League City field, Galveston County, Texas Gulf Coast. Below: Mud pits and ditches for wells drilled by Phillips on the Gulf Coast are covered when weighted-mud programs are being carried out. Here is an installation in the League City field

Coastal Problems



Left: Two 20-in. pumps to be used exclusively in mud circulation are required on deep tests drilled by Phillips Petroleum Co. on the Gulf Coast. This installation is in the League City field. Above: Blowout preventer controls at side of derrick floor on deep test being drilled by Phillips Petroleum Co. in League City field

it stood and then was closed in. In this, pressure built up to 5,900 lb.

Experiences in drilling the first test well led operators to step up the weight of the drilling mud to 13 lb. after reaching a depth below 10,000 ft. in the second test. In the latter test, operators got to a total depth of 11,270 ft., but there ran into trouble, in which pressures encountered blew the 13-lb. mud out of the hole. The well blew out of control for several days before being capped.

Bottom-hole pressure of this well was estimated around 6,500 lb. While out of control, it flowed salt water, temperature of which was 185° F., through the casing around the outside of the drill pipe. This temperature is indicative of some of the problems the company has to overcome in keeping drilling mud properly conditioned to combat the pressures encountered. The fact that much of the formations is sandy adds to the difficulty of controlling the mud and keeping the sand content down.

The third well at League City was started to test the deep sands found in the second test well. As 13-lb. mud failed to hold in the latter well, a still heavier mud program was adopted for the third test, and in it weight of the mud at times was raised to 15 lb. per gal. This test finally reached its goal despite numerous mishaps and considerable mechanical trouble. At a depth of 8,598 ft., drill pipe stuck. The hole was cleaned down to 8,100 ft., where it was sidetracked and a new hole started. The latter went back into the old hole at 8,365 ft., and had to be plugged back to 8,139 ft. and another hole started. This was drilled to 10,072 ft., where a protection string of casing totaling 9,829 ft. of 9⅝-in. pipe was cemented. Additional hole was made to 11,017 ft., but there drill pipe again stuck, due to the heavy mud building too thick a filter cake, and another sidetracking job was necessitated. Bottom of the completed hole is 11,402 ft., which is through the deep, high-pressure sands which operators undertook to drill.

The 9⅝-in. protection casing string run in this well consisted of 1,834 ft. of 54.2-lb. pipe, 2,465 ft. of 47.6-lb. pipe, and 5,530 ft. of 33.5-lb. pipe, making a total pipe weight of 401,991.8 lb. This was set in 12¼-in. hole. Approximately 7,200 ft. of the string was run in the hole, and then after filling up with mud, the remainder of the string was floated in. It was cemented with approximately 1,000 sacks of cement.

As protection in drilling the final 400 ft. of hole, 7-in. liner was set and cemented to approximately 11,000 ft. Top of the liner string was sealed off into the bottom of the 9⅝-in. casing with a packer after squeezing sufficient cement to insure a good cementing job. The liner setting is a regular practice followed by Phillips Petroleum Co. in deep wells drilled on the Gulf Coast. The casing program of this company calls for the setting of long protection strings, these usually being set down to within the last 2,000 to 2,500 ft., and then running liner the remainder of the hole, sealing the top of the liner into the bottom of the protection casing string, as was done in the Herrick well.

In the development of known sands in proved areas, the liner ordinarily would be set closer to bottom, if not on bottom, after drilling through the sands, but in the case of the latter well, with previously undrilled, hazardous horizons ahead and in a sidetracked hole, the liner was run before going deeper as precaution against trouble and possible loss of hole should the well try to blow out.

Protection Strings

Protection casing strings in the League City and Chocolate Bayou fields run from 9,500 ft. to 10,000 ft. in the deeper wells.

Until recently, 7⅝-in. pipe usually has been run for the protection string, with 4¾-in. liner to complete a well. Lately, however, the company has gone to larger hole and pipe as a means of facilitating deeper drilling, and now on the deep wells 9⅝-in. pipe is standard for the protection string, and 7-in. pipe for the liner. For the casing, 12¼-in. hole is drilled. This is reduced to 8¼-in. hole for the liner. The protection string is cemented with approximately 1,000 sacks of cement.

Hole below the liner at 11,000 ft. in the above well was drilled with 2½-in. thread tubing instead of drill pipe. A short drill collar was used, but bits were conventional. This is believed to have been the first time tubing has been used under such circumstances, but to the use of the tubing is attributed some of the success the operators had in negotiating the deep sands. The tubing decreased the circulating pressure required, and made it possible to increase drilling time from 30 to 50 ft. daily.

A mud analyzer and hydrocarbon detector developed by Phillips Petroleum Co. also is credited with playing an important role in enabling the company to drill the last 400 ft. of open hole through high-pressure sands without trouble. Just below the bottom of the liner the high pressures were run into, but with the mud analyzer the gas was detected in time to permit operators to

condition mud and act to prevent the well blowing out. Had it not been for the advance indications of drilling into gas, as revealed by the hydrocarbon detector, it is possible that the gas could have lightened the mud enough to blow out before it would have been possible for operators to compensate for it, so great were the pressures.

When the detector first began picking up signs of the gas, the well was drilling with mud weighing 13.5 lb. per gallon. Quickly, as the mud weight dropped to 13 lb. with the gas cutting, the well was shut in, and pumping through the choke. the mud soon was built up to adequate weight and condition while rotating and circulating through the pressure head. When drilling was resumed, the remainder of the hole was made without further trouble. Then gas began to show up in the detector when the content was less than 0.03 per cent. The content subsequently increased to around 6 per cent.

Three distinct means are employed by the company in determining any change in mud and mud weights due to presence of gas or other conditions. First, there is the mud analyzer, or hydrocarbon detector. Second, a continuous recording mud-weight indicator is provided. Last, but not least, a close gage is kept of the amount of mud in the mud pits, the height of mud in the pits being a ready indication of gas or other changes in mud condition.

Mud Conditioning Facilities

Facilities provided for conditioning the mud include an aerating system which serves not only to eliminate the gas but also to cool the mud, which is considered equally important to, if not more essential than, degassing in effective control. When weighted-mud programs are under way, mud pits and ditches are covered to prevent rain water getting into the system.

Because of excessive sand conditions, both at League City and Chocolate Bayou, effective use has been made of the centrifuge as a part of the mud-conditioning systems. The centrifuge is mounted on skids, and is moved from well to well as needed for desanding, or otherwise conditioning the mud. Whenever the sand content of a well rises to as much as 3 to 4 per cent, and for mud conditioning prior to running casing, the centrifuge is moved in.

Since first attempts to explore deeper horizons at League City have been started, the above company has undertaken development in the new Chocolate Bayou field, where productive sands have been established around 11,400 ft. There conditions similar to those at League City have been encountered in the deeper horizons. So far, only one well has been actually completed as a producing well at that depth. In it, well-head pressures of around 3,900 lb. were recorded. It has a temperature at the surface of 140° F., which is indicative of some of the conditions faced in drilling the well.

This well was drilled to a total depth of 11,449 ft. Casing consisted of approximately 9,500 ft. of 7⅝-in. pipe, with 4¾-in. liner at 11,422 ft. The liner was perforated at 11,409-12 ft., where the well was completed flowing on initial test at the rate of 268 bbl. daily of 49.8-gravity distillate through a ¼-in. choke. Several other wells have been completed in this field but these have been in sands from 9,600 to 10,000 ft. However, several of the latter have been drilled to total depth below 11,000 ft., one to 11,781 ft.

Because of high pressures, a weighted-mud program has been followed in the deeper horizons at Chocolate Bayou, as at League City. With this heavy mud, a number of complications arose in trying to complete a well in these deeper sands. In the first place, in attempts to perforate liner, trouble was experienced in getting perforating guns that are run on wire-line cables down that deep. Also, there was the danger that after perforating, the heavy mud standing in the hole pending completion would tend to permeate the sand behind the casing through the perforations and result in a seal that would obstruct bringing the well in effectively. In addition, there was the ever-present hazard of the well getting out of control while the well was being washed or while surface connections were being made.

Had it been feasible to run a perforating gun on a wire-line cable and complete a well in the conventional method, it would have been necessary to discard the complete hole full of heavy mud and replace with new mud prior to perforating which would have involved not only considerable additional cost but extra time. With the heavy mud it is difficult to treat out any cement contamination from cementing of casing, making this mud unsatisfactory for use.

Successful completion of the deep Chocolate Bayou well was attributed to special practices adopted by the company to meet these problems. These practices include running the gun perforator on the bottom of the tubing string. For this, a gun-perforating tool designed for use in making drill-stem tests, for which it customarily is run on the bottom of the drill pipe, was provided. Firing of this perforator is accomplished by dropping a go-devil. In using this perforator the tubing string is made up with a perforated section just above the perforating-tool barrel, and is run in the hole to a depth that will place the perforator opposite the section of liner to be perforated. It is set with packer above the perforated section of tubing, which packer, when collapsed, seals off the annular space between the tubing and casing above the perforated tubing section.

This setting permits washing the heavy mud from the bottom of the hole, setting up the christmas tree, and making all flow line and other surface connections for final completion of the well before the casing is perforated, which eliminates all hazard of the well blowing out and getting out of control while the above operations are under way. At the same time, there is no heavy mud in the bottom of the hole when the casing is perforated. With this practice, perforating is the final step in completion, and when the well is perforated it is ready to come in and start flowing into the tanks.

Mud Effects Better Seal

Washing the well prior to collapsing the packer, the operator washed the heavy mud from the hole to a point above the packer. Then, when the packer was collapsed, the heavy mud above the packer not only tended to force a more perfect seal, but also made it easier to determine if a seal had been effected, as the heavy mud would break through if a seal were not made. If desired, however, the hole could be washed entirely to the top with clear water, and, if preferred, the water could be replaced with oil prior to perforating.

In such a completion, operators eliminate the special trip with the gun run on wire line, and as there is no mud of any kind in the bottom of the hole when the well is perforated, there is no occasion for replacing the heavy, cement-contaminated mud after cementing casing and prior to perforating. However, as the gun perforator is left in the hole in completion of the well, the tool must be bought outright for each well instead of being run on a rental or service basis.

The tubing string in such a completion contains a left-hand nipple or backoff joint, placed above the packer to permit backing off the tubing above that point in case of trouble. The packer used by Phillips Petroleum Co. was of a drillable metal with $\frac{1}{16}$-in. lead seal so that it could be drilled out should it become necessary to pull the lower section of the string for repair work or reworking the well.

On all its drilling operations in these fields, the company uses a pressure control and drilling hookup made up with the equivalent of four blowout preventers. On the bottom of each assembly is a preventer with drill pipe rams; above this is a preventer with blank rams, or a gate valve; next is another preventer with drill-pipe rams, and at the top is a pressure drilling head. Space below the derrick floor is provided by a 14-ft. substructure.

To insure adequate pump pressure and mud volume to cope with most any emergency that might arise, two 20-in. pumps to be used exclusively for mud circulation are required for each rig. An additional 16-in. pump is provided for mud mixing and general utility. Other equipment and facilities are equally adequate for their respective requirements.

Questions and Answers

In the January 9, 1941, issue of The Oil and Gas Journal, mention was made of starch used in treating muds flocculated by salt water. Will you give more information on this subject?—J. R., Taft, Calif.

The use of starch in treating mud flocculated by salt water is a recent development and is the result of a series of experiments by oil and service-company engineers to employ various gums and starches in the control of the filtration properties of mud. One service company is marketing a prepared mud treatment which has been successfully used on several wells in Kansas and West Texas where salt conditions are particularly bad.

Starch was first mentioned several years ago but it was only recently suggested that hydrolizing the starch would improve its colloidal dispersion and make it suitable for addition to mud. A 1 per cent starch suspension is boiled with sodium hydroxide at a pH of about 11 or 12. Relationship of the starch to the sodium hydroxide used is 10 to 1. Use of this material has resulted in a mud having a good filter test and little differential settling. Generally other muds or clays are added but the starch provides the main colloidal content of the drilling fluid.

The boiled (hydrolized) starch does not increase the viscosity of the mud except in cases where a very thin mud, almost water, is used. On thick muds it reduces the viscosity to some extent due to the elimination of the flocculated condition of the mud. The filter test is markedly improved when large quantities of salt are encountered.

Starch has a tendency to ferment unless some preservative is present. However, salt is a preservative and generally when drilling through a salt formation, enough will be added to the mud to keep down fermentation. A salt concentration of 0.75 per cent is effective in preserving the starch-prepared mud. The salt does not have any tendency to flocculate the mud which has been treated with the starch solution.

The quantity of starch to use varies with the conditions found in different wells. On a recent well in Kansas where the prepared commercial product was used, approximately 3 lb. of compound per gallon of mud was used to decrease the water loss of the mud from 100 cc. to 10 cc. A further reduction in water loss is reported to be possible.

As most mud processes are patented, it might be better to purchase the material from the sales organization marketing the prepared product or determine just what treatment is permitted in view of existing patents, before using the starch treatment.

Pipe-Line-Station Practices for Diesel-Engine Maintenance

By PAUL REED

IN maintaining diesel engines at pipe-line pumping stations practices may vary in detail in different organizations, but it may be observed that the methods of all major companies are determined, in a large part, by a recognition of the same general principles. Although individual engines of the same type may have their own characteristics and, although there may be distinct differences in engines of different types at the stations along the line, there is sufficient uniformity in the main problems encountered to make it possible to adopt routine methods of inspection, overhaul, repair, and record keeping which may be applied in a fairly uniform way at all stations on a trunk-line system. These make it possible for the master mechanic at headquarters to insure that the equipment of a great transportation system is ready to deliver on schedule.

According to prevailing custom, engines are overhauled once a year by the company machinists. Through the year records are kept consisting of such items as station-maintenance logs, mechanical-maintenance reports, mechanical-failure or breakage reports, charts showing cylinder wear, condition of ring grooves, crankshaft alignment, records of liner change, piston change, condition of rings, pistons, bearings, lubrication, etc. Another form of record adopted at certain stations in recent years is known as the machinery work card. One of these is placed in a specially made brass holder fastened to the wall near each engine. This provides a means for recording miscellaneous observations regarding the engine. These observations are regularly made by engineers on duty at the station; notations are made also by company officials while inspecting equipment. Repair work which needs to be done is recorded in a convenient way which makes it possible to attend to a number of small but important details when the engine is shut down. Since the memoranda are quickly jotted down in the engine room and not in the office, it has been found that many small details are recorded which were not regularly reported previous to the adoption of this form of record. By attending to a number of these details of engine maintenance systematically at shutdown times, it has been possible to insure having the engines available for service for longer periods.

Some pipe-line organizations make a practice of having a loose-leaf instruction book with a tabular index at each station. This book has detailed descriptions of each of the procedures which station engineers deal with, in the usual course of operation. The management adds and substitutes pages in this "bible" when conditions require. Some companies prefer not to give explicit instructions of this kind. However, a number of pipe-line organizations make a special point of having station men follow definite procedures set by the company when doing repair work. One company following this policy has found that the systematic inspection schedule outlined can be sufficiently general to be applicable to the majority of the engines on a trunk-line system and is specific enough to insure a thorough inspection. Without such a specific procedure, it has been observed that some parts of the engine do not receive proper attention. One company which uses an inspection procedure of this kind has particularly emphasized the importance of standard inspection procedures at meetings of chief engineers and machinists. In fact, it has even gone so far as to make the discussion of them the principal feature of certain week-end meetings of operating men which the company occasionally holds at a resort hotel for the purpose of threshing out old problems and introducing new methods.

It is not prescribed that the inspection procedure be followed in the order in which various steps are shown in the instructions since it is necessary for the machinist to arrange his work according to the requirements of conditions. During the work of overhauling, instructions specify that parts removed from the engine should be placed in such a way that they are arranged in an orderly manner so that they may be readily handled. Parts are usually put on boards or timbers to avoid scarring the floor. At some stations canvas is used to protect the floor. To get away from handling canvas which becomes soaked with oil and grease after it has been used for this purpose for any length of time, one company uses large pieces of cardboard cartons, obtained from furniture stores; these are conveniently handled when in use and they are burned or otherwise disposed of when they become soaked with oil.

Instructions to Machinists

A company which uses a standard procedure issues instructions which accompany the outline for machinists. These cover a number of points that should be given special attention before and after overhauling. Special emphasis has been given to the importance of the recording by machinists of all observations, measurements, and complete details of abnormal conditions such as cracked bearings and unusual wear. It is also advisable for machinists to look over records which have been kept of the maintenance of the unit on which the machinist is working.

In the course of inspecting an engine before overhauling, notations are made of compression and firing pressures and any irregularities that may appear on the diagrams. A check is made of pressures on water, lube oil, and the three stages of the air compressor. Pressure-relief valves are inspected; valve timing and lifts are checked, governor action is observed; and the fuel pump is checked for leaks. An effort is made to locate any abnormal noises and notes are recorded of any condition not in keeping with good practice. When these points have been checked, the machinist proceeds to the removal and inspection of parts.

On the occurrence of mechanical breakage the practice followed in another organization is to give attention to the type of failure and time the equipment has been in service. Records are checked to determine whether the parts involved had given previous trouble and whether these parts were new or second-hand when installed. Records also show when parts were last inspected by the machinist and the elapsed time between the last tour inspection and the breakage or failure. Cause of the failure is reported as well as a statement as to whether the failure could have been prevented and as to how it could have been prevented. A report of the failure is brought to attention for notation by the chief station engineer, division superintendent, master mechanic, and general superintendent.

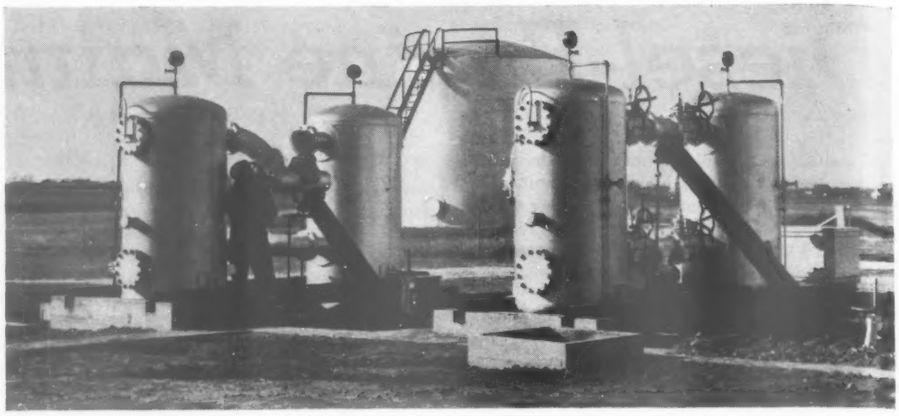
Uniform procedures together with a record system which presents facts of vital importance enable the master mechanic to analyze conditions at points where undesirable tendencies become evident. As a result they often may be corrected so that the efficiency of equipment may be maintained to meet requirements.

Overhauling governor of diesel engine at pumping station on crude-oil pipe line

PIPE-LINE SUGGESTIONS

Tank Strainers on Gasoline Pipe Lines

Tank strainers are used on gasoline pipe lines for removing sediment and abrasive matter from the fluid which is transported. These are placed at the suction side of a pump station where the removal of this abrasive matter prevents it from being carried into the working parts of the pumping equipment. The strainers are connected in parallel in order to make it possible for operators at the station to switch from one strainer to another without interrupting flow through the pipe line.



Device For Correction Table

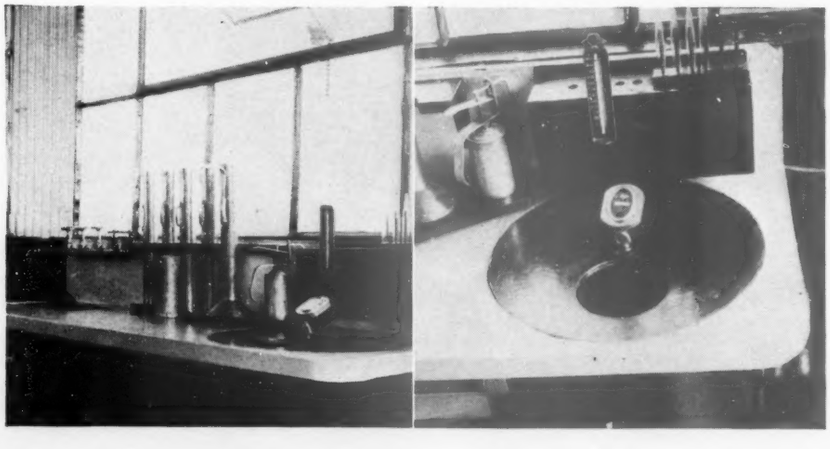
For increasing efficiency in recording data required in pipe-line operation, a California company has devised special equipment for handling the temperature and b. s. and w. correction table. The knob at the right, which can be seen below the pencil sharpener, is turned; this rotates a cylinder or drum containing the table which becomes visible at the inclined part of box. A light inside the box facilitates reading of the data.

Auxiliary Radiator For Cooling Crankcase Oil

At a pipe-line station in Illinois it has been found expedient to cool the crankcase oil, since the engines are heavily loaded and the engine house offers a minimum of normal atmospheric cooling for the crankcase. The oil-cooling radiator, shown, is bolted to the outside of the regular jacket-water radiator, and crankcase oil is circulated through it by means of a pump. In this way the oil is cooled from an average of 175° F. down to 130° F. On some of the other engines at this same station the fan forces air out through the radiator instead of drawing it in from the outside, in which case the oil radiator is bolted to the engine side of the water radiator so that the air will pass through the oil radiator first in all cases.

Unusual Method For Testing Crude-Oil Samples

This oil shake-out unit was designed and constructed by men employed in an East Texas pipe-line station. The centrifuge is driven by a small turbine which is driven by oil pressure from the discharge line of the station pumps. An automobile speedometer attached to the centrifuge serves as a tachometer. Constant speeds are acquired by cracking the valve and admitting variable amounts of high-pressure oil to the drive. Bleeders from three suction and two discharge lines entering and leaving the station are led in at the left. A constant-temperature water bath is located directly behind the centrifuge. The centrifuge is installed in a guard made of welded 16-in. casing, sufficiently heavy to protect the operator. This equipment has been installed in such a way that it provides for conducting testing operations efficiently. Samples can be procured conveniently. Power resources in the pipe-line system are utilized effectively. Correct conditions are insured by provisions for holding the water bath at a constant temperature.



Kinetics and Chemistry of Cracking of Hydrocarbons

Here, Dr. R. Rosen, of the Standard Oil Development Co., presents a digest of a series of articles written by M. D. Tilicheev and published abroad on the subject of kinetics and chemistry of cracking of hydrocarbons. First half of the series includes a study of paraffin and isoparaffin hydrocarbons, olefins and diolefins. The second portion, to appear in a subsequent issue of The Oil and Gas Journal, will deal with cyclic unsaturated, naphthenes and aromatic hydrocarbons. For the most part, the papers written by the author are based upon work done in the Soviet Union.

Foreign data are used here only in cases where these are helpful in classifying generalizations. In using the foreign data, interpolation is resorted to and tentative assumptions are made where the data are incomplete. In some cases corrections have been made. Accordingly, the data are regarded as correct only in the first approximation and are subject to revision as new experimental material is accumulated.

This digest is submitted by the Petroleum Division of the American Chemical Society. However, it assumes no responsibility for the facts and opinions presented, nor does it necessarily endorse statements made therein.

INASMUCH as cracking plants use metal equipment at elevated pressures, the authors have attempted to develop unified data for the various hydrocarbons under these conditions. Most of the high-pressure studies discussed in this paper involve the use of a static method in an iron apparatus. The authors point out the advantages and dependability of this method of studying cracking reactions over the dynamic method.[7] They agree, however, that if the latter method were used under conditions of turbulent flow, the most substantial disadvantage of the present-day dynamic method will disappear.

The author further points out that in the cracking of most hydrocarbons, several simultaneous reactions take place (decomposition, polymerization and isomerization, etc.). To understand completely the cracking process, a detailed knowledge is necessary of the kinetics of each of these separate reactions and the effect of different factors on each reaction. However, the author limits these articles to the kinetics of the sum total of the reactions that take place in the cracking and under the conditions studied.

Cracking of n-Paraffins

Several articles have appeared by Tilicheev and others[1 2 3] on the cracking of *n*-paraffins at 425°-450° C. under 150 atm. pressure. The hydrocarbons studied by him included decane, dodecane, hexadecane and dotriaoctane.[1 3] From the data on these hydrocarbons and some by Frey and Hepp[9] and taking the values of (*a*) 65,000 cal. per mol as the energy of activation for hydrocarbons from pentane to decane inclusive, and (*b*) 60,000 cal. per mol for hydrocarbons from undecane and higher over the temperature range 400°-600° C., Tilicheev expresses the velocity constant K as a function of T for the former series of hydrocarbons by Equation 1.

$$\text{Log } K = \log (n\text{—}6.8) + 14.22 - \frac{13{,}170}{T} \qquad (1)$$

and for the latter series by Equation 2.

$$\text{Log } K = B - \frac{E}{4.571\,T} \qquad (2)$$

where B is a constant calculated from known K and E from experimental data.

The cracking-velocity constants for normal paraffins from these equations are given in Table 1. The cracking-velocity constant is also shown to be nearly independent of the extent of conversion and Tilicheev concludes that for practical purposes, the cracking reaction of paraffin hydrocarbons is a reaction of the first order.

In one article[1] an activation energy of 59,500 cal. per mol for wax is calculated from experimental data obtained on cracking of paraffin wax.

There are also presented in this paper data to show that the yield of gasoline (200° end point) from dodecane, hexadecane and dotriacontane is practically constant at 425° C. and 60 minutes' contact time.

TABLE 3

No.	Hydrocarbon	Unimolecular cracking-velocity constant at 600°: k sec.$^{-1}$
1	ethylene	0.001
2	propene	0.0031
3	2-butene	0.013
4	diisobutene	(2.0)

TABLE 1—CRACKING-VELOCITY CONSTANTS FOR NORMAL PARAFFINS

Hydrocarbon—	Cracking-velocity constants at the following temperatures: 400° $k \times 10^6$ sec.$^{-1}$	425° $k \times 10^5$ sec.$^{-1}$	450° $k \times 10^4$ sec.$^{-1}$	475° $k \times 10^4$ sec.$^{-1}$	500° $k \times 10^3$ sec.$^{-1}$	550° $k \times 10^2$ sec.$^{-1}$	575° $k \times 10^2$ sec.$^{-1}$
$C_{12}H_{12}$	0.44	0.25	0.13	0.58	0.23	0.31	1.0
$C_{14}H_{14}$	1.9	1.1	0.55	2.5	1.0	1.3	4.4
$C_{16}H_{16}$	3.8	2.2	1.1	5.0	2.0	2.7	..
$C_{18}H_{18}$	6.9	4.0	2.0	9.1	3.7	...	..
$C_{20}H_{20}$	10	6.0	3.0	14	5.6	...	..
$C_{22}H_{22}$	14	8.0	4.0	18	7.4	...	..
$C_{24}H_{24}$	19	9.8	4.3	17	6.5	...	..
$C_{26}H_{26}$	22	11.5	5.0	20	7.6	...	..
$C_{28}H_{28}$	28	14	6.2	25	9.3	...	..
$C_{30}H_{30}$	33	17	7.4	30	11	...	..
$C_{32}H_{32}$	37	19	8.3	34	13	...	..
$C_{34}H_{34}$	41	21	9.1	37	14	...	..
$C_{36}H_{36}$	45	23	10	41	15	...	..
$C_{38}H_{38}$	50	26	11	46	17	...	..
$C_{40}H_{40}$	55	28	12	50	19	...	..
$C_{42}H_{42}$	59	30	13	54	20	...	..
$C_{44}H_{44}$	65	33	14	59	22	...	..
$C_{46}H_{46}$	68	35	15	62	23	...	..
$C_{48}H_{48}$	72	37	16	66	25	...	..
$C_{50}H_{50}$	78	40	17	71	26	...	..
$C_{52}H_{52}$	81	42	18	74	28	...	..
$C_{54}H_{54}$	85	44	19	78	29	...	..
$C_{56}H_{56}$	89	46	20	81	30	...	..
$C_{58}H_{58}$	96	49	21	87	32	...	..
$C_{60}H_{60}$	100	51	22	91	34	...	..
$C_{62}H_{62}$	102	53	23	93	35	...	..
$C_{64}H_{64}$	110	56	24	100	37	...	..
$C_{66}H_{66}$	122	58	25	102	38	...	..

TABLE 2—CRACKING-VELOCITY CONSTANTS OF OLEFINS

No.	Hydrocarbon—	Cracking-velocity constants (k_2): 300° $k_2 \times 10^5$	350° $k_2 \times 10^5$	400° $k_2 \times 10^4$	425° $k_2 \times 10^4$	450° $k_2 \times 10^3$	500° $k_2 \times 10^3$ sec.$^{-1}$
1	ethylene	2.6	3.9	3.9	1.1	2.8	1.6
2	propene	0.78	1.1	1.1	3.1	0.78	0.45
3	2-butene	0.49	0.71	0.71	2.0	0.49	0.28
4	pentenes (mixt.)	0.31	0.45	0.45	1.2	0.32	0.18
5	2-hexene	0.25	0.35	0.35	1.0	0.25	0.14
6	octene	0.98	1.4	1.4	3.9	1.0	0.56

Cracking of Olefins

In the case of cracking olefins, the two main reactions are polymerization and decomposition. Since the kinetics of polymerization of only some individual hydrocarbons under definite conditions is known and the data are limited on the kinetics of cracking unsaturated hydrocarbons, the author limits his paper to a discussion of the kinetics of the total reaction.

The author concludes from a study of Russian data[10 11 12 13] and the foreign literature that at temperatures up to 500° C., especially under elevated pressures, the cracking of olefins follows the second kinetic order, whereas at 600° C. and higher it follows the first order.

It is further concluded from this work that at temperatures below 500° C. the cracking-velocity constant from ethylene to hexene continuously diminishes with rise of molecular weight of the olefin. The energy of activation is practically unaffected by the molecular weight and amounts to approximately 40,000 cal. per mol. With further rise in the molecular weight of the olefin, the cracking-velocity constant again increases. (See Table 2. The data given in this table refer to an initial concentration of the olefin equal to 1 g. mol per liter. With change of the concentration of the olefin the constants change in proportion to the concentration.)

At temperatures above 600° C. the cracking-velocity constant of olefins rapidly increases with rise of their molecular weight. (See Table 3.) This difference in the dependence of cracking velocity upon the molecular weight is explained on the basis that at low temperature the cracking runs

TABLE 4—COMPARATIVE THERMAL STABILITY OF PARAFFINS AND OLEFINS

No.	No. of carbon atoms	Relative velocity of cracking at 425° (cracking velocity of ethylene under atmospheric pressure = 1)			Relative velocity of cracking at 600° (cracking velocity of ethylene = 1)	
		Paraffins	Olefins		Paraffins	Olefins
			Under pressure of 1 atm.*	Under pressure of 60 atm.†		
1	C_2		1	57	0.5	1.0
2	C_3	(0.008)	0.32	18	11	3.1
3	C_4	0.10	0.18	10	52	13
4	C_5	0.13	...	6.3	....	....
5	C_6	0.6	...	5.1	....	....
6	C_8	2.2	...	19	....	....

*More exactly at an initial concentration of the olefin equal to 0.175 g. mol/liter.
†More exactly at an initial concentration of the olefin equal to 1.0 g. mol/liter.

mainly towards polymerization and an increase in the alkyl chain affects comparatively little the reaction ability of the double bond. At high temperatures, however, cracking reactions predominate. In this case, the alkyl chain behaves as a paraffin hydrocarbon and its thermal stability rapidly diminishes with increase of molecular weight.

On the basis of the data on paraffins and olefins the author concludes that the relative stability of paraffins and the corresponding olefins is as follows: Below 500° C. under pressures above 20 atm., olefins exhibit a lower thermal stability than paraffins. With increase of temperature, the relative thermal stability of the olefin increases since the temperature coefficient of cracking velocity is slower for olefins than for paraffin. (Table 4.)

With a drop in pressure, the relative thermal stability of olefins and the corresponding paraffins varies with the temperature and pressure. Data are given in Table 5 in this connection on

TABLE 5—TEMPERATURE AND PRESSURE REQUIRED FOR DIFFERENT RELATIVE CRACKING VELOCITIES OF PROPENE (CRACKING VELOCITY OF PROPANE EQUALS 1)

Relative velocity of cracking of propene	Atm. pressure at		
	400°	450°	500°
100	0.94	6.9	31
10	0.094	0.69	3.1
1	0.0094	0.069	0.31
0.1	0.0009	0.0069	0.031

propane and propene and the author concludes that the same relation holds for the low-molecular-weight olefins, ethylene and butene-2, but that additional data are required for the higher-molecular-weight olefins, particularly at high temperatures.

Cracking of Diolefins

This section of the paper by the author[5] is devoted to the work in the literature on diolefins. The author concludes from the data of Vaughan[14,15] that the cracking of low-molecular-weight diolefins in the gaseous phase at temperatures ranging from 300°-700° C. shows the second kinetic order. Tables 6 and 7 summarize kinetic data and cracking-velocity constants for diolefins based on the data of Harkness and coworkers.[16] The work of Moor[17] on the cracking of butadiene is also discussed and the considerably lower activation energies reported by Moor as compared to Vaughan is explained by the fact that the cracking-velocity constant of Moor refers to the concentration of butadiene vapors at atmospheric pressure whereas that of Vaughan refers to a concentration of butadiene equal to 1 g. mol per liter.

The author summarizes in Table 8 the data of

TABLE 8—EFFECT OF PRESSURE ON THE POLYMERIZATION VELOCITY CONSTANT

Hydrocarbon—	Polymerization temperature	Change of the polymerization velocity constant with change of pressure	
		k_{1000}/k_1	k_{2000}/k_{500}
Isoprene	160	5.9×10^4	25.0
Dimethylbutadiene	140		105

Tammann and his coworker[18] on the dependence of polymerization-reaction velocities of isoprene and dimethyl butadiene upon pressure.

Diolefins have the lowest thermal stability of all the hydrocarbon classes at low temperatures. However, with rise in temperature the difference in thermal stability is gradually equalized, and at high temperatures the dienes appear to be more thermally stable than other classes of hydrocarbons. Thus, if the data in Table 8 are extrapolated to higher temperatures the calculation shows that whereas butane is cracked 740 times slower than 1,3-butadiene at 500° C. it is cracked only 16 times slower at 700° C. and 36 times faster at 900° C. This, according to the author, explains why the yields of dienes should increase with rise of temperature in cracking operations. Further, the process of "hardening," i.e., rapid cooling of hot cracked products, can also be explained on this basis.

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TABLE 6—DATA ON KINETICS OF CRACKING OF DIOLEFINS

No.	Hydrocarbon—	B	Energy of activation E, cals.	Temperature limits	Author	Reference
1	1,3-butadiene	7.67	25,300	326-370	Vaughan	(14)
2	isoprene	8.72	28,900	286-370	Vaughan	(14)
3	2,3-dimethyl-1,3-butadiene	7.16	25,300	309-400	Harkness et al	(16)
4	1,3-pentadiene	7.54	26,000	279-419	Harkness et al	(16)
5	cyclopentadiene	4.93	14,900	120-194	Harkness et al	(16)

TABLE 7—CRACKING-VELOCITY CONSTANTS OF DIOLEFINS

No.	Hydrocarbons—	Cracking-velocity constants at			
		200° $k \cdot 10^4$ 1.mol^{-1} sec.$^{-1}$*	300° $k \cdot 10^3$ 1.mol^{-1} sec.$^{-1}$*	400° $k \cdot$1.mol^{-1} sec.$^{-1}$*	500° $k \cdot$1.mol^{-1} sec.$^{-1}$*
1	1,3-butadiene	.093	1.02	0.28	(3.2)
2	isoprene	0.54	0.49	0.21	(3.5)
3	1,3-pentadiene	0.33	0.41	0.123	(1.51)
4	2,3-dimethyl-1,3-butadiene	0.29	0.32	0.087	(1.00)
5	cyclopentadiene	110	19.4	1.23	(5.1)

*The bimolecular constants given show the part of the hydrocarbon converted in 1 sec. at its initial concentration equal to 1 g. mol/liter.

Swivel Removed From Well by Special Head

THE swivel is perhaps one of the most important and vital points on modern rotary equipment, and the proper care and handling of the unit, therefore, is of great importance.

One of the major companies operating heavy-duty draw works and rotary equipment in a deep California field takes more than the average amount of care of their swivels by building a special sled or cradle upon which the swivel can be laid and transported while moving it from one location to another.

As shown in the accompanying photograph, two 8-ft. runners of used 6⅝-in. casing, tapered at the ends, serve as the base for two all-welded steel-plate supports, one at each end. A half-circle cut from a short section of 8-in. pipe welded to one of the end supports acts as a support for the lower, or kelly end of the swivel. The other end of the cradle has two short, slanting fins welded upon the top of it, over which the heavy bail can rest without danger of its slipping off sideways. Two angle-iron cross members welded across the two runners help to support the trunnion block in approximately the center of the cradle. Two small bails made from sucker-rod material and welded to each side of the sled runners provide a means of lashing the swivel firmly in place.

While not in use, this sled takes up very little space in some little-used corner near the rig. Upon removing the rig and equipment the swivel can be loaded upon it easily with the sand line, and promptly skidded out of the way of any possible injury that might be caused by a falling piece of steel or dirt and sand getting into the bearings.

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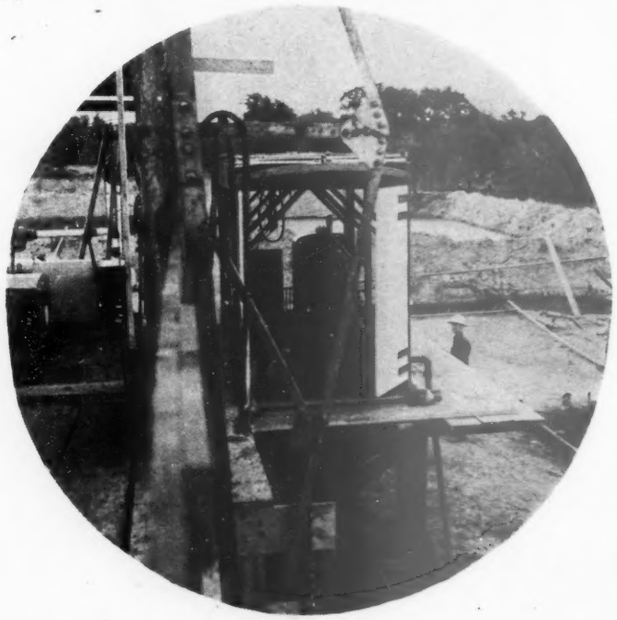
LUMMUS

PETROLEUM REFINING PLANTS

Operating Ideas

Auxiliary Mounted on Substructure

A special substructure made from a few timbers allows the auxiliary equipment to be placed on the same level with the



other engines. This eliminates the necessity of climbing off the derrick platform to service the engine. Placing it on the main-engine substructure would crowd the machinery.

Oil-Drum Rack on Skids

Handling lubricating oil on a drilling rig is greatly facilitated if a proper rack for the drums is provided. The above rack is made from old drill pipe and suspends four oil drums on individual sets of trunnions. It is a simple matter to tip the drum and open the stop. When moving, the drums can be taken from the rack and laid on the skids.

Transporting Movable Equipment

A producing company in the Bradford, Pennsylvania, fields mounts much movable equipment on skids or "boats" and covers them with sheds. These are transported to various parts of the field by truck and snaked about the field by tractor. Shown on the truck is a 1,000-gallon gasoline tank containing fuel for tractors, etc., in the field, mounted on a "boat" and housed in the shedlike covering.

Crank Actuates Blowoff Valve

By mounting a pair of brackets on the boiler shell, and setting therein a short length of 2-in. pipe, long enough to reach from front out past the setting of the blowoff valve, one company provides accurate control of the valve and positive opening. A chain, fastened to the extended pipe and the end of the blowoff valve lever, is wound around the pipe by the crank welded into position at the boiler front, the pipe acting as drum and giving ample leverage to trip the valve against full boiler head. Reversing the swing of the hand crank frees the chain, allowing the valve to be closed under steam pressure. For handling when on the move the pipe is simply slipped forward in its supports until the crank lies close to the boiler front, and again moved to operating position when boiler is again in use.

Operator Has Wide Choice in Selecting Pumping Equipment

By HARRY F. SIMONS

BEFORE an oil well is completed, the operator or his engineering staff must consider the method or methods which will be used to lift the oil after the flowing life is over. As the producing characteristics of the well change throughout its life, the operator is constantly faced with the problem of revising his equipment and methods to maintain maximum efficiency and profit. Each year the producer is offered a wider selection of lifting methods from which he is able to make his choice.

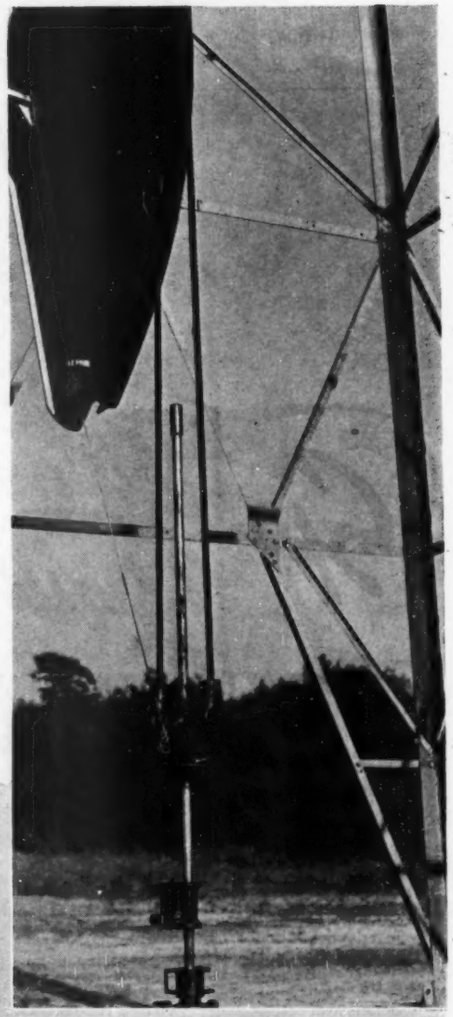
Each of the various methods has its particular merits and is more suitable for certain localities, or at certain periods during the life of the well, than others. In some cases, the lifting equipment may be selected from habit, because of the operator's background or because it happens to be the common practice in a particular area. The tendency in recent years, however, has been to judge the applicability of each method to a particular well in terms of cost per barrel of oil lifted. Whenever the lifting costs mount, properties are reexamined to determine whether the lifting method in use is the most economical, and if not, what changes are possible to increase the efficiency of the operation.

The great bulk of wells in the United States have some type of rod or tubing pump with which to lift the oil. There are approximately 320,000 such wells in the country. Simplicity of operation, ease of adjustment over a wide capacity range and low operating costs are the principal features of this method.

Plunger-type pumps are generally run on or in a string of tubing although not necessarily so, casing pumps being quite common in wells where large volumes of fluid must be handled. The recent policy of some companies to drill unusually small-diameter holes has also led to considerable experimentation with the casing pump. Essentially it consists of a beam and rods which actuate a plunger at the bottom of the well. The plunger may be almost as big as the casing or it may be as small as desired, depending on the amount of fluid to be handled and the size of the rod string. Where a small plunger is used, the casing pump has no more volume capacity than the regular tubing or rod pump, the only advantage being the elimination of the tubing string. This advantage is offset by the danger of wearing a hole in the casing due to the repeated contact of the rods as they work up and down.

There is a wide variety of surface equipment used for casing, tubing or rod pumps. The rods may be lifted and lowered by a single or double-crank pumping unit, a jack, a rig front or a traveling piston. Any of these may be operated by a horizontal or multicylinder-type engine using gas or liquid fuel; electric motors operating on purchased power or on generated power are often used.

Individual pumping units permit the length of



Above: Control box for intermittent pumping contains a time clock which automatically starts and stops the pumping. Right above: Beam pump with automatic device which rotates the rod string with each stroke. The ratchet has 54 notches and a complete revolution of the rod string takes place in that number of strokes. Right: Double-crank pumping unit driven by an internal-combustion engine. Note special cover for engine when it is not operating

the stroke and the strokes per minute to be readily adjusted to the characteristics of the well. The single unit can operate at maximum efficiency and can be quite easily balanced following a dynamometer or dynograph test. Units driven by electric motors can be equipped with timing devices which will automatically start and stop the unit. This is particularly advantageous on wells which will flow intermittently if agitated by the pump or on wells which have a low fluid capacity and pump off after several hours of operation. Automatic timing devices are also used widely for stagger pumping in conjunction with a lease power-generating plant, the pumping periods being arranged to keep within the capacity of the plant.

Pumping jacks, operated by rod lines running to the well from a central power, are widely used on leases where the wells are similar enough in depth and capacity to permit this method. Where wells vary widely in pumping requirements, their application is difficult. The principal saving is in the use of a single engine to operate as many as 32 jacks. This saving is offset to some extent by the loss in horsepower due to friction in the rod lines. Many companies have recently made extensive studies to increase the efficiency of the rod lines and have installed equipment which markedly reduces the friction losses.

Proper balancing of the power, so that it has a fairly even horsepower requirement throughout its cycle, increases its efficiency. Terrain has become less of a problem due to the development of holdups, holddowns, swings and the catenary suspension of the rod lines.

Some companies are using a combination between backside pumping and central power for operation of small leases. This consists essentially of a heavy-duty, double-crank unit which drives stroke posts from each crank. From two to eight-stroke posts may be operated by the unit; rod lines attached to the stroke posts operate the jacks at the wells. The double-crank unit can be driven by an internal-combustion engine or an electric motor. This type operation is particularly suitable to small leases where a full-sized power would not be justified, where rod lines may have to be unusually long if a regular power were used or where only small groups of wells can be found which have similar characteristics.

On deep wells one of the principal problems is rod breakage due to the reversal in direction of the travel of the rods. Much of this trouble is being eliminated by proper balancing of the

Well on which bottom-hole electrical centrifugal pump is being used. Electric cable is spooled on reel while the pump is out of the hole

unit and by using a longer stroke and fewer strokes per minute. The vibration frequency in the rod string can also be determined and a speed which is not in harmony with the vibration period selected. In an effort to develop an unusually long stroke, several traveling-piston pumps have been developed. These consist essentially of a long vertical piston to which the pumping rods are attached. The piston is raised by air, gas or liquid pressure being applied; it is lowered by a release of the pressure.

The different types of pumps used in wells exceed the variety of the surface machinery; all work on the same general principle but have slightly different designs to meet particular problems. They are also available in a wide range of sizes. It has been found that the proper size pump often results in considerable production increases; this includes wells in which both larger and smaller pumps have been installed, the main requisite being that the pump fit the particular well.

Pumps commonly used include the common working barrel with cup armored plunger and removable standing valve, full-liner working barrel

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with steel plunger and snap-ring standing-valve holddown, sectional-liner working barrel with grooved metal plunger and garbutt rod, concentric tube pumps which use fluid for a seal and a fixed standing valve, all-metal plunger with hollow garbutt rod and a sand trap which is emptied by raising standing valve. There are also a number of insert, or rod, pumps which can be run in the well on the rod string. These include types which can be seated and packed off in the old working barrel, pumps with top-seating cups, bottom-seating pumps with grooved plunger and sectional liner, pumps with cold-drawn barrel, ring-armored plunger and drop and seat valves, pumps with concentric tubes with bumper rings for pulling stationary assembly, pumps with a traveling barrel with cup extension on the plunger, traveling barrel with full-liner working barrel and spring-retained packing on plunger, and solid-plunger pumps.

Casing pumps are practically the same as rod pumps, the only difference being the matter of size and the manner in which they are packed off in the casing.

Supplementary equipment may be needed with any of the above pumps. In one field, what is known as a gyp pump is merely a barrel having a cast-iron liner and a chrome-steel plunger which has had its outer barrel lengthened at the top and bottom to permit the plunger to clear both ends of the barrel on each stroke. Deposits are thus kept from forming in the barrel of the pump. The elimination of gas-locking may require that a gas-anchor be installed below the pump.

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Rodless Pumps

Wells which have a high fluid capacity can often be economically operated with a pump which has no rods. There are two main types, bottom-hole centrifugal pumps driven by electric motors, and bottom-hole pumps actuated by hydraulic pressure. These do not need to be run at the bottom of the well but are so called because they operate while submerged.

The electrical centrifugal pump is run in the well on the tubing with a waterproof cable connecting it to a power supply at the surface. The size of the pump and the size of the motor determine what its capacity will be. For this reason, some wells on which high fluid output is expected are equipped with large casing. The hydraulic pump is also run in the well on tubing but in addition it has a macroni string through which fluid (screened oil) pressure, created at the surface by a triplex pump, is transmitted to the pump at the bottom of the well; the exhaust from the pump in the well enters the production string of tubing.

In some cases, use of this type pump has made profitable operation of a property possible. This is particularly true where extremely large volumes of water have to be handled to recover a relatively modest amount of oil. In some cases, wells which have been flooded have been recovered by the rapid removal of the water so that the oil was permitted to flow into the well bore.

An arrangement analagous to the central power may be used in either the electrical centrifugal or the hydraulic-pressure pumps. The one requires an electrical-generation plant with transmission lines and transformers at the well head while the other requires a central hydraulic-power plant from which lines carry the power fluid to the individual wells.

Plunger Lift

There have been some fields in which plunger lifts were used with considerable success. The term practically describes the operation, a plunger carrying oil before it being raised to the top by gas pressure and then allowed to drop back to the bottom of the well where it is again ready for a trip to the surface. Each time the plunger is raised, the tubing is emptied of the oil except for the fluid which flows into the well. A lubricator arrangement is used for recovering the plunger at the surface in case it is necessary to inspect or repair it. Its operation often requires a supply of high-pressure gas although if conditions are favorable it may be made to operate on the gas in the well.

Gas lift first came into prominence in the Seminole field and has since been widely used, particularly for the transition period between flowing and pumping. During this time the wells have a large capacity to produce and with a little energy added by the injection of high-pressure gas, will flow. In some cases the wells need only to be kicked off and will flow for a considerable period afterwards.

In the past few years an innovation has increased the scope of gas lift. Intermittent application of the injection gas has made it possible to produce fairly low-capacity wells profitably by this method. Some companies are planning on making an attempt to produce properties to depletion by intermittent gas lift. The same principle has been found helpful in large-capacity wells, the gas being injected at intervals regulated by the height of the fluid in the well. Principal requisite is a supply of gas having sufficient pressure to lift the fluid out of the well, a tubing string with kickoff collars located at proper intervals and some type of intermitting arrangement.

Progress in METALS

By W. L. NELSON

Use of Nickel in 1940

THE annual survey of the International Nickel Co. discloses the following references to the use of nickel in the petroleum industry.

"While the American oil industry is operating below the level of industry in general, applications of nickel alloys in this field continue to advance, both in number and diversification.

"One large equipment manufacturer has adopted 3½ per cent nickel-molybdenum case-hardening steel to replace lower alloyed steels in rock-bit cutters. Piston rods in slush pumps made of this steel have also set excellent service records, and it is being used widely for replacement rods.

"Drill pipe of 2 per cent nickel-1 per cent copper high-tensile steel, which was installed over 2 years ago in United States West Coast fields, has served so well that a great increase in its use for this purpose is predicted. The same steel is increasing in use for sucker rods, an application for which its combination of strength and resistance to corrosion fatigue render it well suited.

"A new design of drill stem increasingly used in the oil fields comprises nickel-chromium-steel tool joints of high tensile strength welded to standard carbon-steel drill pipe.

"Stainless steels and heat-resisting chromium-nickel-iron cast alloys continue to find an important place in refinery equipment such as fractionating towers.

"An important new use of nickel-clad steel during the past year was in the construction of large oil-refinery bubble towers. . . ."

Applications of nonferrous mill products include: K-monel pump shafts subject to corrosive effects of oil, salt water, etc.; and monel for oil-refinery topping towers, power-house sump tanks, and for many chemical applications.

News of High-Temperature Ferrous Alloys

AMONG the cast irons, the simplest group that has any significant heat-resisting value are the high-strength irons, according to R. C. Tucker ("Chromium Heat-Resisting Cast Irons," Foundry Trade J., Vol. 62, June 20, 1940, pp. 463-64, 471; June 27, 1940, pp. 485-86, 490).* Their more stable pearlite and finer graphite than ordinary iron confer superior growth resistance at 850°-1,000° F. Unalloyed high-strength irons do not resist scaling nor heat shock and on short-time tensile tests their strength is satisfactory only up to 930° F.

Low-alloy irons are likewise not resistant to heat shock, and are only slightly more scale resistant than high-strength irons. They depend for their high-temperature strength on close control of structure and analysis. The best method of adding chromium seems to be in the ladle, using a modern exothermic addition agent—for example, "Chrom X," a mixture of chrome ore with carbonaceous material and thermit that glows white hot and dissolves completely in the metal when added to it. (See also the "Trend" on this subject in the June issue, p. MA372). Service reports show satisfactory performance at 1,750° F. of 9-ton retorts made of cast iron containing 3.25 per cent total C, 1.2 Si, 0.6 Mn, 0.1 S, 0.1 P, and 0.65 Cr.

Discontinuities in the strength-temperature curve of low-alloy irons containing silicon, nickel, or chromium were examined by F. Roll ("Beitrag zur Zugfestigkeit von Gusseisen in Abhangigkeit von der Temperatur," Giesserei, Vol. 27, April 5, 1940, pp. 123-24). For example, one pearlitic iron had a tensile strength of 37,000 lb. per sq. in., at 70° F.; this dropped to 13,500 at 1,250° F., rose to 15,300 at 1,275° F., dropped to 13,000 lb., and then gradually dropped off to 2,000 at 1,650° F. Discontinuities of this type occur in plain cast irons, but are most prominent in alloy irons, and seem to take place in the A_1-A_3 transformation range. From an engineering standpoint this temporary increase in strength is of no practical importance.

Tucker also discusses high-alloy irons, such as Ni-crosilal and Ni-Resist, which are scale resistant up to 1,800° F. and have appreciable bending strength at 1,550° F. Aluminum as a constituent of cast iron considerably improves its scale resistance, but the difficulty of getting the aluminum in the iron was almost insuperable until a special technique was developed to produce an iron known as "Cralfer" containing 7.5 per cent aluminum and some chromium (see "Cast Iron for Modern Engineering Applications," T. Tyrie, Foundry Trade J., Vol. 62, March 7, 1940, pp. 185-87).

High-chromium alloys.

Values for the "scaling index" (gain in weight in mg./sq. cm. for seven cycles of heating and cooling in burnt city gas) and "time-yield" stress (giving an average creep of 10^{-4} in. per in. per hour between 24 and 72 hours at 1,300° F.) are tabulated for a series of plain chromium steels and industrial heat-resistant alloys by W. H. Hatfield ("Heat-Resisting Alloys," J. Birmingham Met. Soc., Vol. 19, December 1939, pp. 155-68).

Some typical values are given in the accompanying table.

Alloy—	Scaling index at 1,800° F.	Time yield stress at 1,300° F., lb./sq. in.	Max. temp. of use, °F.
13 Cr stainless	250	240	1,400
18/8 with Ti	175	4,480	1,475
8 Cr, 4 Si	0.64	300	1,650
14 Ni, 13 Cr, 3 W ...	110	3,360	1,850
19 Cr, 7 Ni, 4 W	2.8	3,920	2,000
25 Cr, 21 Ni	5.1	3,360	2,100
33 Cr	2.3	320	2,100
78.5 Ni, 13.5 Cr ..... (Inconel)	.....	3,920	2,100

Sometimes it is found that certain austenitic nickel-chromium-iron alloys show, before being placed in high-temperature service, an abnormally large grain size in localized areas, which leads to local weakness and early failure in use. The probable cause of this was sought by A. Portevin and R. Castro ("Etude de la Recristallization d'ure Austenite Speciale au Nickel-Chrome," Bull. Assoc. Tech. Fonderie, March-April 1940, pp. 47-50) by variously cold working and annealing specimens and noting their recrystallization behavior.

The abnormal results were obtained when the specimens were overheated in the range 2,090°-2,200° F. Apart from this, there were no unusual recrystallization phenomena, e.g., transformations, etc. The structural changes produced by a small amount of cold work may result, in heating, in the very large-grain size.

Alloy steel bolting materials.

Materials selection, relaxation and creep testing,, and service requirements of alloy steels for bolting are discussed by J. J. Kanter of Crane Co. ("Reducing Creep in Alloy-Steel Bolting Materials," Steel, Vol. 106, March 4, 1940, pp. 44-8, 72). Relaxation tests of actual bolted joints at elevated temperature indicate that bolting relaxation may be the determining factor in maintaining tight joints when service temperatures are very high. There is no real basis in the A.S.T.M. alloy-steel bolting-material specifications (A 193-39T) for accepting as relaxation and creep resistant any of the 11 steels there listed. A short-time acceptance test (supplementing the required tension tests) for bolting materials still needs to be developed.

Only one steel (B14) in the specification calls specifically for a normalizing treatment followed by a draw. It was developed by the author's company and is called "Templex." It contains 0.35-0.50 per cent C, 0.40-0.70 Mn, 0.04 max. P, 0.05 max. S, 0.15-0.30 Si, 0.80-1.10 Cr, 0.30-0.40 Mo, and 0.20-0.30 V. This steel is unusual in that it comes through normalized-and-draw treatment with excellent tensile properties.

As oil quenched and drawn, B14 has high-temperature short-time tensile properties, similar to those of B7 (S.A.E. 4140) steel. However, at 900° F. the properties of oil-quenched B7 and normalized B14 respectively, are: (*a*) tensile strength, lb. per sq. in., 98,000 to 116,000; (*b*) yield point, lb. per sq. in., 73,000 and 88,000; (*c*) creep stress, 1 per cent per 10,000 hours, lb. per sq. in., 20,500 and 59,000; and (*d*) creep stress, 0.1 per cent per 10,000 hours, lb. per sq. in, 10,000 and 40,000.

Relaxation tests showed a decline from 30,000 lb per sq. in. to 25,300 lb. per sq. in. for normalized B14 after 180 days at 850° F. This indicates that a number of years would be required for relaxation to 15,000 lb. per sq. in., the approximate stress at which leakage occurs in the usual high-pressure flanged joint. At 850° F., B7 relaxed to the 15,000 lb. per sq. in. leakage point in but 63 days.

Studies of relationship of creep resistance to microstructure tend to show that an optimum grain-size range exists in which an alloy steel is most resistant to creep. For B14, this range seems to be about A.S.T.M. No. 5-7. Finer grain size represents too great a proportion of the material in the "disorganized" condition which promotes creep, while larger grain size does not afford enough "keying" against plastic deformation.

Welding Terms

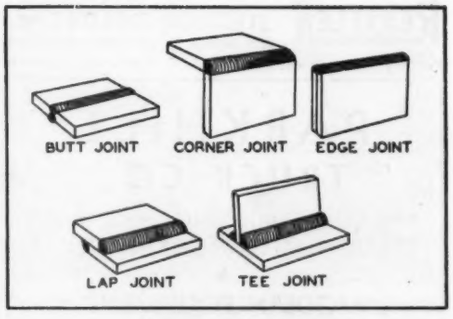
Types of Joints

THE common types of welding joints, butt, corner, edge, lap and tee, are shown on this page. A number of welds may be used for each type of joint—and these are:

Butt joint.—Square groove, single-V groove, butt (resistance), single-bevel groove, double-bevel groove, single-U groove, double-U groove, single-J groove, double-J groove, and double-V groove (illustrated).

Corner joint.—Fillet (illustrated), square groove, single-V groove, single-bevel groove, double-bevel groove, single-U groove, single-J groove, double-J groove, and projection (resistance).

End joint.—Bead (illustrated), single-V groove, and single-U groove.



Types of welded joints

Lap joint.—Fillet (illustrated), plug, slot, spot (resistance), seam (resistance), and projection (resistance).

Tee joint.—Fillet (illustrated), single-bevel groove, double-bevel groove, single-J groove, and double-J groove.

Most of these types of welds were illustrated in Welding Terms of February 6, 1941, Page 55.

A composite joint is one in which welding is used in conjunction with a mechanical joint.

*Abstract—Taken from the September 1940, issue of Metals and Alloys.

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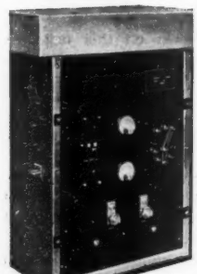

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Pipe-Line Activity

Roosevelt Asks for Probe of Rail Interference With Pipe Lines

On the Washington News Page, Page 31 of this issue, the letter is published which was sent by President Roosevelt to Chairman Clarence F. Lea, of the congressional committee on interstate and foreign commerce, asking for an investigation of the obstructionist tactics employed by railroads in the southeastern states which are delaying pipe-line construction. This is accompanied by a discussion of the pipe-line situation in that area and the interest which the Navy and other branches of the federal Government have in the construction of pipe lines for the program of national defense.

Gulf Lays 40-Mile Line From Opelika Field, Tex.

HOUSTON, Tex.—Gulf Oil Corp., pipe-line division, is laying a 4-in. pipe line from the Opelika field, northeast Henderson County, Texas, to its Big Sandy station, a distance of approximately 40 miles. The Big Sandy station is on the company's trunk system from East Texas to Port Arthur. Approximately 15 miles of the line has been completed. The new line will transport distillate production of the distillate recovery and absorption plant being built in the Opelika field by Lone Star Gas Co. and Shamrock Oil & Gas Co.

Missouri-Kansas Election To Be Reviewed in Court

WILMINGTON, Del. — Directors of the Missouri-Kansas Pipe Line Co. were instructed by Chancellor W. W. Harrington to appear in court of chancery, February 27 to answer charges of illegal election.

The charges were brought by Hartman & Co., a stockholder.

Directors of the company are Ira Letts, John R. Perry, David Boyd-Smith, Hubert E. Howard, A. Faison Dixon, Geoffrey R. Mellor, and William G. Maguire, president.

Counsel for Hartman & Co. has charged that Hugh G. Kelleher was denied election as a director through the illegal rejection of proxies at a meeting at Dover, Del., December 3, 1940.

United Uses Amateur Diver For Repairs at River Crossing

In the repair of a leak which occurred in a 10-in. line crossing the Brazos River at a point 11 miles south of Richmond, Tex., United Gas Pipe Line Co. had one of the men in the gang complete the job, as an amateur diver, equipped with deep-sea diving equipment. When the line was laid originally, according to United Log, it had been weighted by a 32-in. section of 12-in. pipe which had been slipped over the 10-in. Where the space between the 10-in. and the 12-in. had been filled with molten lead, a leak was spotted.

According to W. H. Kearney, pipe-line superintendent, the crew made two barges, using barrels for pontoons. The repair was accomplished by welding four steel pieces on a section of 14-in. pipe, the ends of which were swedged down to 10 in., after which a 10-in. center ring was welded to the swedge. The sides were drilled, and turned down so as to make smooth fittings for the gaskets.

The company's deep-sea diving outfit, which is stored at the Clinton warehouse, was requisitioned for the job. Although the company usually employs a deep-sea diver, in this case it was regarded as feasible to use the services of members of the pipe-line crew. The air pump for the diving suit was installed on the barge. The river was muddy and it was necessary for the amateur diver to work by feel alone in fitting and bolting the new sleeve.

United Gas Lays Line From Bayou De Large Field

NEW ORLEANS, La.—United Gas Pipe Line Co. has completed a 4-in. gas pipe line from the Bayou De Large field, through Lirette field, to Houma, Terrebonne Parish, Louisiana Gulf Coast district. The line is 14 miles long, 12 miles of which is through marsh and water beds, including one lake, 2½ miles across. The line was laid under contract by Latex Construction Co. of Houston, Tex.

Pipe Lines Defend Suit Brought by Osage Nation

In the Osage tribal council's campaign to recover "millions of dollars" from purchasers and transporters of crude oil from Osage lands a second trial begins in Tulsa this week in the court of federal Judge Franklin E. Kennamer.

The Osages and Department of the Interior lost the first case last year when Judge Kennamer ruled the oil companies were without fault in buying crude oil on the 97 per cent tank-table basis, a rule that had been in existence since 1859. By that ruling a petition of the tribal council, backed by the Government, was nullified. The Indians sought to recover the 3 per cent deducted since oil was run from the county.

Court Authorizes Payment to Texas-Empire Pipe Line

CHICAGO.—Federal Judge William J. Campbell today signed an order permitting payment by the Government of $60,000 to the Texas Empire Pipe Line Co., Tulsa, for costs of relocating an oil pipe line across

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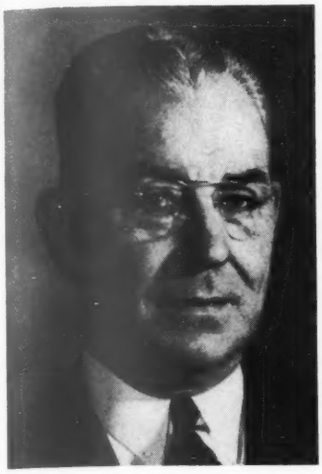
Pipe-Line Personalities . . . . . John P. Fallon



JOHN P. FALLON has been elected recently to the office of president of Tuscarora Oil Co., Ltd. The principal activity of this company is the operation of a pipe-line system consisting of 6-in. and 8-in. lines extending from a point on the Ohio-Pennsylvania State line near Negley, Ohio, across the states of Pennsylvania and New Jersey to the Standard Oil Co. of New Jersey at Bayonne, N. J.

Within recent years this system has been operated principally for the transportation of refined products; about 25 per cent of the shipments have been crude oil. Lately, the system has been an important link in a transportation hookup of an unusual nature, consisting of a system of lines for the transportation of Oklahoma crude to Philadelphia for Gulf Refining Co.

In becoming head of the Tuscarora organization, Mr. Fallon succeeds E. J. Lewis, who retired at the beginning of the year. Mr. Fallon was employed on September 6, 1904, as construction superintendent of Atlantic Refining Co. From January 24, 1908, to December 31, 1928, he served in the manufacturing department of Standard Oil Co. of New Jersey, at the Bayway refinery, in various capacities including that of mechanical superintendent. He joined the Standard Oil Co. of Pennsylvania on January 1, 1929, as manager of terminals. John G. Heussner, who has been serving as superintendent of the Philadelphia terminal, has been promoted to the position of terminals assistant; he is taking over the operations formerly handled by Mr. Fallon. Arthur L. Ripley, formerly superintendent of the East Freedom, Pa., terminal, has replaced Mr. Heussner.

the site of the new TNT plant near Wilmington, Ill.

The amount of line to be replaced consists of 2½ miles of two parallel 12-in. lines. The company has received bids from contractors for the construction work and it is possible that a contract for the work may be let this week.

Government requirements have made it necessary to replace lines of Stanolind Pipe Line Co. and Sinclair Refining Co., pipe-line department, which cross the reservation on which the Wilmington, Ill., TNT plant is located. Construction work there has been contracted for these two companies by Sheehan Pipe Line Construction Co.

Humble Completes Line at Hawkins, Tex.

The Humble Pipe Line Co. has completed a pipe line serving the Hawkins field in Wood Coupnty, East Texas. Oil is purchased for 78 cents a barrel at the well.

Latex Is Awarded Contract By Dow Chemical Co.

HOUSTON, Tex.—Dow Chemical Co. has awarded contract to Latex Construction Co. of Houston for the laying of 22 miles of 8-in. welded gas pipe line from the Anchor field, Brazoria County, Texas, to its chemical plant at Freeport, Tex. This line will supply additional gas for use of the plant to augment the supply already being obtained from the Bay City field, Matagorda County, from where a 10-in. and 8-in. line was laid last summer.

Southern Natural Gas Awards Contract to Ford, Bacon & Davis

NEW YORK.—Southern Natural Gas Co. announced a contract let to Ford, Bacon & Davis Engineering Corp. to supervise construction of a new 135-mile pipe line, to cost $2,200,000.

The new line will extend from the present western terminus of the system in the Monroe gas field in Louisiana to the Logansport gas field near the Louisiana-Texas boundary.

The work will require approximately 16,000 tons of 14-in. pipe, orders for which have been placed with the National Tube Co. and Republic Steel Corp.

Southern Natural's line to Logansport will tap a large new gas field centering in De Soto Parish, Louisiana, and Shelby County, Texas. Recently an associate of Southern Natural brought in one 117,000,000 and one 123,000,000-cu. ft. gas wells in the area. Several more gas wells are being drilled in the area.

It is reported that through the recent financing arrangements Southern Natural Gas Corp. has obtained $4,800,000, of which $2,200,000 is to be spent on this project.

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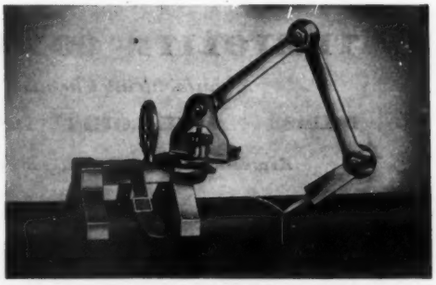

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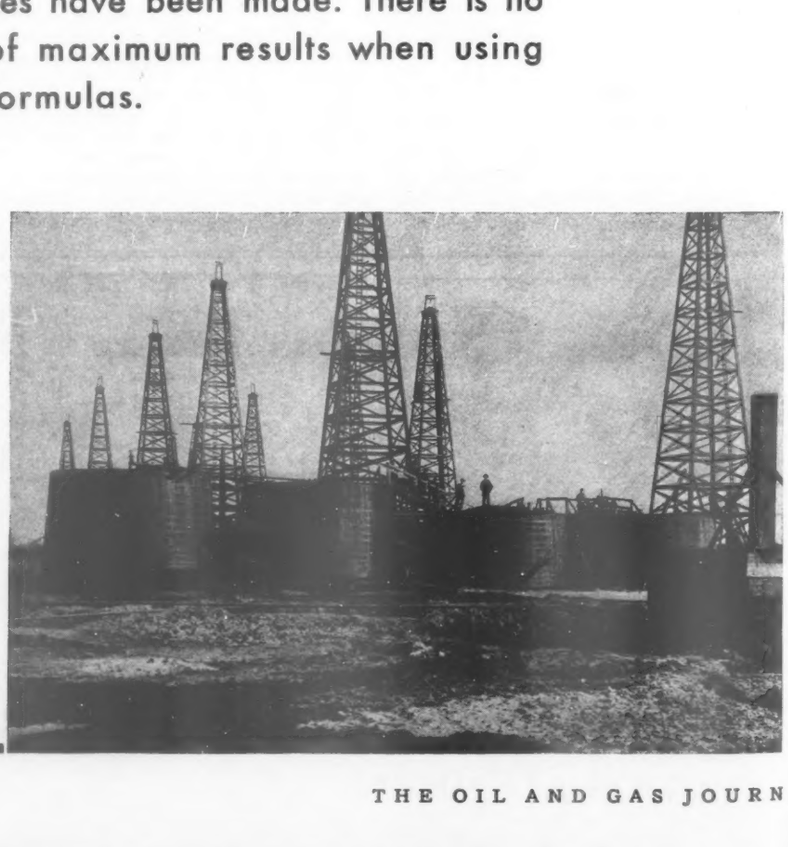


Oil settling tank, West Columbia oil field, 1919.

FIELD DEVELOPMENTS...

HIGHLIGHTS FROM THE WEEK'S NEWS—

Completions dropped from 504 to 461 during the week, with oil wells showing a decline of 59, gas wells 2 and dry holes an increase of 18. More significant is the fact that 1941 completions to date are within 10 of the corresponding Saturday of last year and if exact dates were considered, this year's activity would run over 100 wells ahead of last year. Of the 23 divisions carried in the completion table on this page, 11 show increases for the year to date and 12 show decreases. Of the areas showing more activity, four are east of Illinois and Kansas forms a fifth, showing the effect of improved prices for crude in the eastern fields, combined with serious falling off of production in Illinois and Michigan. The latter state has shown a steady decline for well over a year and there is as yet no sign of an upturn. For several years, Michigan has kept ahead of requirements only by reason of numerous discoveries and rapid drilling up of fields. For 15 months, discoveries have failed to keep up.

Offset drilling in West Texas and the Hawkins play in East Texas are responsible for increased activity in these areas. Otherwise low allowables are keeping drilling down. After getting away to a slow start, 1940 saw the completion of 30,040 wells, an increase of 3,201 over the preceding year. So far, 1941 is duplicating the history of 1940.

In spite of two low wells, which appear to limit the Hawkins play on the south and southeast, there is plenty of room for an important field in that the closest one to production is 4 miles south of the discovery. Another dry hole 3 miles east of the discovery limits production in that direction.

On the Gulf Coast, the play that started in 1939 with West Ranch and was continued in 1940 with the drilling up of that field and the partial development of Lolita, has received added impetus with the favorable developments at La Ward. All three fields produce from the Frio sand section and this trend will undoubtedly be extended. While Louisiana is slowing down there have been several new fields or new sands opened up this year insuring steady activity for some time. Mississippi remains active and several wildcats have shown signs of being near production.

In the northern Mid-Continent, the expected Dakota play will probably await spring, but in Kansas, operators are stepping out along the Barton arch towards the Nebraska line and north flank production is also being sought.

LOUISIANA GULF COAST: Third productive sands were opened up in Schooner Bayou, Vermilion Parish, and Potash, Plaquemines Parish. First crude-oil production from Section 28 dome, St. Martin Parish, is expected from a north flank test (p. 83).

ARKANSAS: The first repressuring project in Arkansas will start this week following authorization to repressure the Jones sand at Schuler (p. 87).

OHIO: The Geauga County deep test is dry in the Trenton (p. 82).

COLORADO: A well marking a mile extension of the Powder Wash gas field is near completion and is making 4,500,000 cu. ft. of gas (p. 86).

EASTERN TEXAS: As the week closed, two wildcat outposts to the Hawkins field in Wood County were checking from 550 to 600 ft. low and mark definite limitations to the Hawkins field play (p. 81).

KANSAS: With completions already running about 30 per cent above last year, companies are spreading out in new areas. Kearny, Thomas, and Smith counties are being tested by the drill. A new pool is opened 1½ miles north of Emmeran, Hagen is extended ⅝ mile northeast and Trapp a mile east, at the south end (p. 67).

CALIFORNIA: After deep tests on the south end of Inglewood had showed production, although not of great importance, a test on the north end is running high and has good showings (p. 72).

ILLINOIS: Rossi's Trenton test at Salem is now reported to be making 242 bbl. or some 80 per cent above the initial production. A new pool in White County was brought in by a 200-bbl. well in the Tar Springs sand. Franklin County's Benton pool may be of considerable size as a second well is showing production some 4 miles from the discovery (p. 70).

TEXAS GULF COAST: The Chenango prospect in Brazoria County proved productive when the discovery well flowed 453 bbl. plus 33 per cent water through ¼-in. choke. What appears to be a new sand is producing distillate at Rowan. Another Frio sand discovery has apparently been made at La Ward, in Jackson County. This pool is on strike with West Ranch and Lolita. Lolita and Anahuac are extended (p. 83).

WEST TEXAS: A new field discovery or a 3-mile northeast extension to the two-well Waples-Platter field is in prospect in eastern Yoakum County, where a wildcat northeast of the Waples-Platter production is heading oil and attempting commercial completion. Pecos County's prospective Ordovician discovery well is still testing mostly water, while Ordovician production in the Abell field has been given a new east outpost test by Stanolind Oil & Gas Co. (p. 64).

NORTH TEXAS: Two wildcats in Archer County are testing for field discoveries, one being in the northwestern part of the county where it is attempting completion in the Mississippian lime; the other is testing the Caddo lime in the Vogtsberger Strawn area of northeastern Archer County. New wildcats were started the past week in Wilbarger, Archer and Jack counties (p. 78).

WEST CENTRAL TEXAS: With no definite results known at the end of the week, wildcats in Coleman, Palo Pinto, and Jones counties were showing up as either field discoveries or extensions to recently opened fields (p. 80).

OKLAHOMA: Two pools are opened in Osage County and drilling is still forging ahead in Okfuskee. Gulf's interesting Wood County wildcat is abandoned after finding the second Wilcox hard and dry (p. 76).

NORTH LOUISIANA: A new horizon just above the Travis Peak pay at Lisbon is being tested (p. 87).

COMPLETIONS IN ALL FIELDS . . .

(Week ended February 8, 1941)

	Oil	Gas	Dry	Total	1941 total comp. to date	1940 total comp. to date
N. Y., Pa., and W. Va.	57	17	7	81	500	415
Ohio	7	9	12	28	151	78
Indiana	2	0	3	5	42	28
Kentucky	1	1	4	6	62	29
Illinois	31	0	21	52	309	367
Michigan	7	2	7	16	88	128
Kansas	21	3	6	30	174	133
Oklahoma	10	2	5	17	148	163
Texas:						
North Central Texas	30	3	23	56	265	298
West Texas	41	0	1	42	211	190
Texas Panhandle	4	0	0	4	47	62
Eastern Texas	10	0	0	10	125	107
Texas Gulf Coast	12	0	3	15	96	141
Southwest Texas	17	3	11	31	138	220
Total Texas	114	6	38	158	882	1,018
North Louisiana	7	2	2	11	67	71
Louisiana Gulf Coast	11	0	5	16	83	90
Total Louisiana	18	2	7	27	150	161
Arkansas	1	0	1	2	18	26
Mississippi	5	0	1	6	20	16
Montana	5	0	0	5	30	15
Wyoming	1	0	1	2	19	17
Colorado	1	0	0	1	1	5
New Mexico	3	1	2	6	41	70
California	16	0	3	19	136	112
Total United States	300	43	118	461	2,771	2,781
Total previous week	359	45	100	504		
Week ended Feb. 10, 1940	311	30	64	405		

Outpost Marks New Field or Big Waples-Platter Extension

By

R. MARNE SANFORD

MIDLAND, Tex., Feb. 10.—The discovery of either a new producing spot or a 3-mile northeast extension to the small two-well Waples-Platter field in eastern Yoakum County held the attention of oil men in the West Texas district at the close of the past week.

The wildcat is George Livermore 1 Ownby, 660 ft. from the north and east lines of Section 502, Block D, Gibson Survey, just 3 miles north and slightly east of the northernmost producer in the Waples-Platter field which is just northeast of the Bennett sector of the large Wasson field. Early the past week saturation was topped at 5,251 ft. after encountering a 1,500,000-cu. ft. gas "kick" at 5,218 ft. Broken saturation was drilled to a total depth of 5,293 ft. from which depth commercial completion attempts will start this week. At 5,288 ft. the well headed 34 bbl. of oil in 24 hours. Best saturation is believed present from 5,243 to 5,251 ft.

The new strike is believed to be on the same structure and more centrally located than the two Waples-Platter wells. The strike is higher structurally than Waples-Platter production, however, a definite low is known to exist between production in the Bennett sector and in the Waples-Platter field. Considerable lease and royalty trading has been carried on during the past week as a result of the favorable showings in the well.

Gaines County.—Gaines County was given a new wildcat operation during the week when George Etz acquired a block of farmout acreage and staked location for a new south outpost to the Cedar Lake field.

The acreage acquired was Labor 11, League 283, Schleicher County School Lands Survey, adjoining on the south the 430-acre lease in Section 8, Block 30-C, P.S.L. Survey, on which Etz's company, San Andres Production Co., is now drilling a south outpost to the field. Starting date for the new wildcat or definite location was not announced the past week.

Production in the Slaughter field of Hockley County will receive a north extension attempt with the staking of Magnolia 1 Wilson last week. Its location is 440 ft. from the south and west lines of Labor 8, League 41, Maverick County School Lands Survey, about 1 mile north of production in the extreme northern part of the field.

NORTHERN WEST TEXAS COMPLETIONS

(24-hour ratings based on last 3 hours of 6-hour gage)

Cochran County

Slaughter-Duggan field: Atlantic 4 Boyd, 675 bbl. open tubing, 10,000 gal. acid, 4,980-5,053 ft.
Magnolia 2-H Mallett, 604 bbl., 3-in. casing outlet, 10,500 gal. acid, 5,002-65 ft.
Mid-Continent 1-A Mallett, 649 bbl., 7/16-in. choke, 11,000 gal. acid, 4,998-5,050 ft.

Gaines County

Seminole field: Amerada 1 Riley, old well drilled deeper, old T.D. 5,047 ft., old top pay 5,014 ft., old initial 298 bbl., new T.D. 5,235 ft., new initial 1,240 bbl., natural, ½-in. choke.
H. W. Bass 4 Austin, 443 bbl., ½-in. choke, natural, 5,065-5,220 ft.
Humble 2 Champion, 536 bbl., ½-in. choke, natural, 5,080-5,306 ft.
Magnolia and Atlantic 16-219 H.&J., 486 bbl., ½-in. choke, natural, 5,102-5,256 ft.
Ohio 6 Gibbs, 600 bbl., ½-in. choke, natural, 5,160-5,330 ft.
Wasson field: Continental 1-49 Wasson, old well drilled deeper, old T.D. 4,980 ft., old top pay 4,880 ft., old initial 1,071 bbl., new T.D. 5,050 ft., new initial 701 bbl., 8,500 gal. acid.

Hockley County

Slaughter-Duggan field: Awoeb Oil 3 Barry, 991 bbl., 2.7 per cent water, 9,000 gal. acid, 4,916-5,015 ft.
Devonian Oil 2 Citizens Nat'l Bk., 1,154 bbl., 3-in. casing outlet, 11,000 gal. acid, 4,906-5,009 ft.
S. W. Richardson 10 Slaughter, 1,149 bbl., open casing, 8,000 gal. acid, 4,885-4,985 ft.
Stanolind 1-A Slaughter, old well drilled deeper, old T.D. 4,975 ft., old top pay 4,946 ft., old initial 432 bbl., new T.D. 5,018 ft., new initial 1,786 bbl., 3-in. casing outlet, 7,500 gal. acid.

Mitchell County

Dockery & Robbins field: K. A. Ehmen 1 Crawford, 320 bbl., pumping, 310-qt. shot, 1,628-1,757 ft.
K. A. Ehman 1 Strain, 424 bbl., pumping, 470-qt. shot, 1,646-1,800 ft.
Gibson Oil 1 Mills, 75 bbl. in 18 hr., pumping, 500-qt. shot, 1,558-1,681 ft.

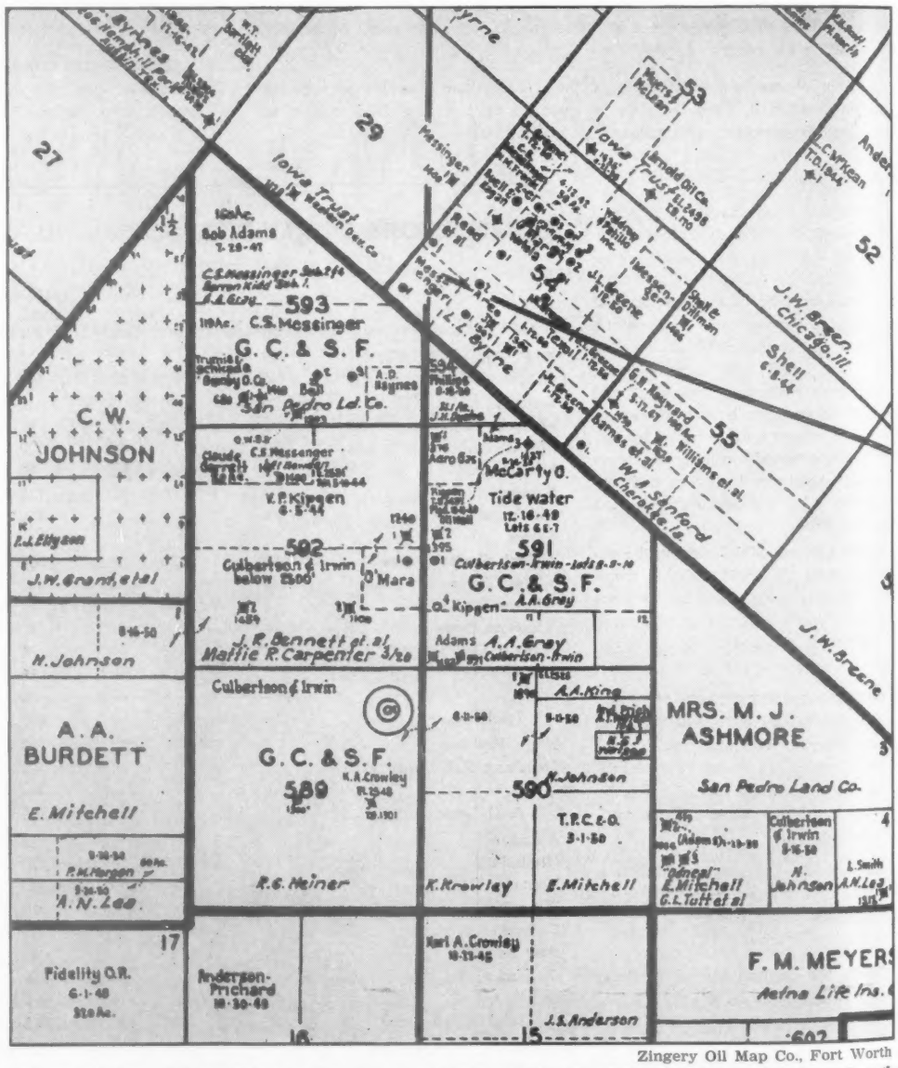
Yoakum County

Wasson field: Continental 5-A Stevens, 938 bbl., open tubing, 8,000 gal. acid, 4,955-5,065 ft.
Don Danvers 12 Willard, 960 bbl., open tubing, 10,000 gal. acid, 5,054-5,270 ft.
Mabee Oil & Gas 1 Kiel, 867 bbl., 1½-in. choke, 10,000 gal. acid, 5,100-5,265 ft.

SUMMARY OF COMPLETIONS

	No.	Bbl.	Footage
Northern West Texas			
Oil wells: Slaughter-Duggan	6	5,213	30,177
Seminole	4	2,165	21,112
Dockery-Robbins	3	844	5,238
Sharon	3	299	6,691
Wasson	5	4,177	25,925
Dry holes: Sharon	1	.....	2,648
Total	22	.....	91,791
Old wells drilled deeper	4	4,289	.....
Southern West Texas			
Oil wells: Waddell field	2	13,786	9,028
North Cowden	4	2,447	17,922
Goldsmith	3	3,482	12,614
Ward County	4	1,615	10,427
Keystone field	2	398	6,845
Other fields	4	8,477	11,430
Wildcat discovery	1	34	4,312
Total	20	.....	72,578
Old well drilled deeper	1	dry	.....
Southeast New Mexico			
Oil wells: Eddy County	1	5	1,160
Lea County	2	2,665	7,096
Gas wells: Lea County	1	*1.2	3,870
Dry holes: Wildcat	1	.....	582
Loco Hills field	1	.....	3,350
Total	6	.....	16,058
Old well drilled deeper	1	50	.....
***Texas Panhandle**			
Oil wells: Gray County	1	95	3,087
Hutchinson	3	2,289	9,160
Total	4	.....	12,247

*Million cu. ft.



Zingery Oil Map Co., Fort Worth

Culbertson & Irwin 1 Mary Heiner, prospective opener of Pecos County's third Ordovician pool, is located on the southwest flank of the old Byrne shallow field and about 9 miles west of the deep production in the Apco field

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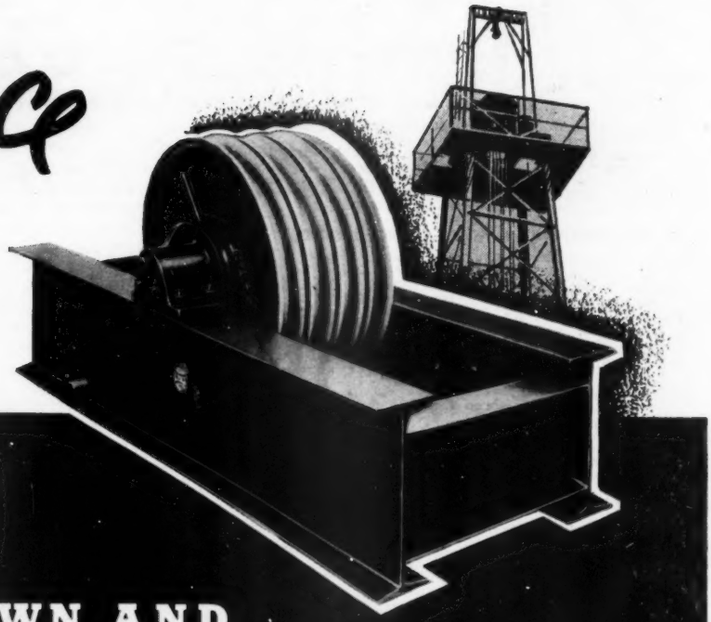

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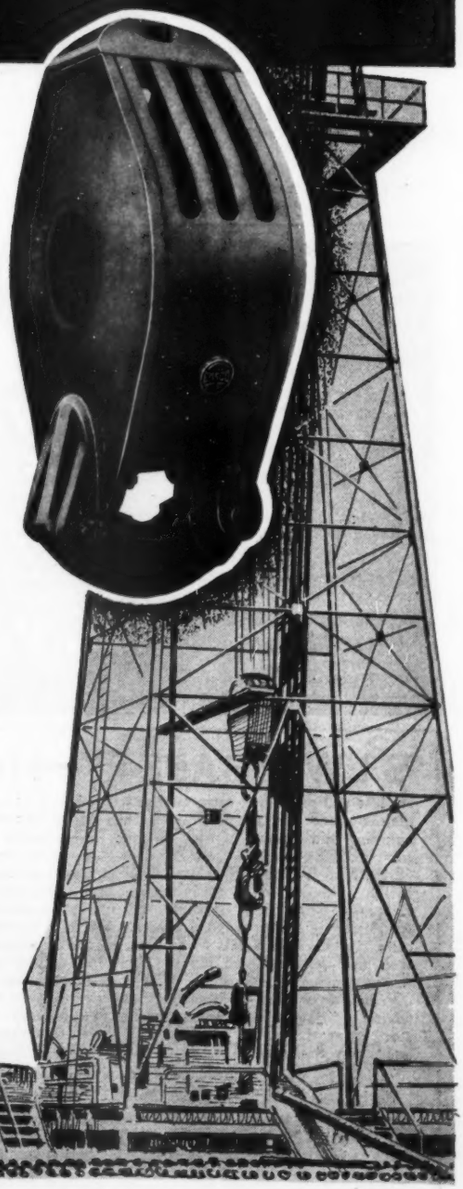

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Shell 3 Corder, 386 bbl., ⅝-in. choke, 10,000 gal. acid, 4,885-5,045 ft.
Shell 3 Dowden, old well drilled deeper, old T.D. 5,071 ft., old top pay 4,961 ft., old initial 165 bbl., new T.D. 5,171 ft., new initial 562 bbl., 1-in. choke, 5,000 gal. acid.

Scurry County

Sharon field: Buffington & Smith 3-A Chapman, 15 bbl., pumping, 287-qt. shot, 1,660-1,770 ft.
Dodson & Robbinson 8 Burney, 108 bbl., pumping, 740-qt. shot, 2,280-2,420 ft., P.B. from 2,471 ft.
Magnolia 4 Sterling, 176 bbl., pumping, 960-qt. shot, 2,215-2,450 ft.
F. W. Merrick 1 Dozier, dry at 2,648 ft.

NORTHERN WEST TEXAS WILDCAT REPORT

Andrews County

Phillips 1 University-Drews, NW NE Sec. 32, Blk. 10, University Lands Sur., drilling 5,741 ft.
Phillips 2 Embar, NE SE Sec. 5, Blk. 44, Twp. 2n, T.&P. Sur., ¾ mi. N of Embar, drilling 5,525 ft.
Furham Pet. 1 Lockhart-Brown, Sec. 24, Blk. 42-A, P.S.L. Sur., top solid lime 4,155 ft., T.D. 5,600 ft., P.B. 4,558 ft., treated 1,000 gal. acid, swabbing and testing.

Cochran County

Rhodes and Atlantic 1 Dean, C NE Tr. 4, Lge. 89, Lipscomb C.S.L., T.D. 5,150 ft., P.B. 5,112 ft., treated with 1,000 gal. acid, 210-qt. shot, P.B. to 5,099 ft., water not shut off, still testing.
George Livermore 1 Wright, old well drilling deeper, old T.D. 4,997 ft., contracted to Ordovician, drilling 5,095 ft.

Gaines County

Amon G. Carter 4-D Wasson, NW SE Sec. 50, Blk. AX, P.S.L. Sur., logged new pay about 6,610 ft., tight well, application filed to drill to 11,000 ft., drilling approximately 10,345 ft.
W. E. Smith 1 fee, in Lots 11 and 12, Blk. 38, in Seminole townsite, 1¼ mi. E of Seminole field, building derrick.

Hockley County

Magnolia 1 M. Wilson, SW cor. Labor 8, Lge. 41, Maverick C.S.L. Sur., 1½ mi. N of production in Slaughter field, location.

King County

J. B. Cunningham 1 F. W. Thormann, NE NE W. C. Browder Sur., drilling 1,680 ft., 3,000-ft. test, last report.

Martin County

Magnolia 1 N. D. Teague, NW NW Lab. 10, Lge. 260, Borden C.S.L. Sur., 5,500-ft. test, drilling water well.

Mitchell County

Peck & Croft 1 Jack Smith, 2,173 ft. from N and W lines, Sec. 19, Blk. 26, T.&P. Sur., drilling 1,730 ft.
C. E. Casebolt 1 J. E. Franklin, NE NE NW Sec. 50, Blk. 27, T.&P. Sur., location.

Yoakum County

George Livermore 1 Ownby, NE NE NE Sec. 502, Blk. D, Gibson Sur., drilled broken saturation 5,227-85 ft., flowed several heads oil, testing.

SOUTHERN WEST TEXAS

Completion attempts at Pecos County's newest Ordovician strike, together with a new wildcat for the same county's Abell field and official completion of a discovery well in Ector County, lent to a busy week in the southern part of the West Texas district.

Some 9 miles west of the Apco field of northern Pecos County Culbertson & Irwin, Inc., are still attempting commercial completion at 1 Mary Heiner, prospective Ordovician discovery well. At last reports the well had swabbed 46 bbl. of fluid in 8 hours, 40 per cent being basic sediment and bottom-hole water. The oil recovered with the fluid was believed to have been part of the oil load since a total of 250 bbl. was used with the third-stage acid treatment of 2,000 gal. and only 160 bbl. was at that time recovered. The well previously had been acidized with 1,500 gal. and 8,000 gal. at 5,541 ft., plugged back from a total depth of 5,663 ft.

In the Abell field of northern Pecos County which was recently purchased by Stanolind Oil & Gas Co. from the original discoverers, Taubert-McKee-Siemonelt, the operating firm has staked a new outpost wildcat. It is Stanolind 1 Conry-Davis unit, 660 ft. from the south and west lines of Section 31, Block 9, H.&G.N. Survey. It is 4 miles east and slightly south of the discovery well for the field which was completed for 933 bbl. in 11 hours and 23 minutes. The location is only 2 miles south of the Crane County line and in the extreme eastern part of the 3,140-acre block acquired by Stanolind in the purchase.

Ector Discovery Gaged

Ector County's newest discovery well, on the large Embar ranch which also extends north into southern Andrews County, Phillips Petroleum Co. has officially completed its discovery well, 1-A Embar (formerly 1-222) for a daily gage of 34 bbl. of oil and 3 bbl. of water flowing through open 2-in. tubing from pay drilled from 4,260-4,312 ft. The section was acidized with 1,000 gal. and 1,500 gal. Location is in the SE cor. Section 6, Block 44, Township 1n, T.&P. Survey, 3½ miles north of the Goldsmith field and 1½ miles south of the Andrews County line. The well is just south of the same company's gas discovery well late in 1940 which was completed in the northern part of the Embar ranch as a fuel source for continued drilling activity in the area.

Ward and Winkler Deep Tests Planned

Out of a shooting option block of 52,960 acres lying along the county line between Ward and Winkler counties, Shell Oil Co., Inc., has reported that 21,600 acres have been taken for commercial leases, the price averaging about $2.50 per acre. Deep exploration to the 9,000-ft. level is thought to be the objective in line for the large block, the first such test to be in northern Winkler County. The company leased various picked sections, all out of Block A, G.&M.M.B.&A. Survey.

SOUTHERN WEST TEXAS COMPLETIONS

(24-hour ratings based on last 3 hours of 6-hour flow)

Crane County

Waddell Extension field: Gulf 16 Waddell, 8,263 bbl., open casing and tubing, 5,000 gal. acid, 4,350-4,533 ft.
Gulf 18 Waddell, 5,523 bbl., open casing and tubing, 5,000 gal. acid, 4,300-4,495 ft.

Ector County

North Cowden field: M. J. Delaney 1-C Smith, 593 bbl. with 1 per cent water, open tubing, 800-qt. shot, 4,170-4,375 ft., P.B. from 4,413 ft.
Carl B. King 1-B Holt, 799 bbl., open tubing, 230-qt. shot, 4,302-6 1ft.
Stanolind 6-B Midland Farms, 120 bbl. oil and 312 bbl. water, pumping, 450-qt. shot, 4,395-4,580 ft., P.B. from 4,610 ft.
T.&P. Coal & Oil 7 Holt, 935 bbl., open casing, 660-qt. shot, 4,360-4,538 ft.
Wildcat discovery: Phillips 1-A Embar, Sec. 6, Blk. 44, Twp. 2n, T.&P. Sur., 34 bbl. oil and 3 bbl. water, 2,500 gal. acid, 4,210-4,312 ft.
Johnson field: George Livermore 1-35 Johnson, 1,192 bbl., open tubing, 200-qt. shot, 4,075-4,139 ft.
Goldsmith field: Gulf 332 Goldsmith, 1,095 bbl., open casing and tubing, natural, 4,181-4,239 ft.
Gulf 333 Goldsmith, 1,100 bbl., open casing and tubing, 1,000 gal. acid, 4,182-4,242 ft.
Gulf 335 Goldsmith, 1,287 bbl., open tubing, 4,000 gal. acid, 4,174-4,233 ft.

Pecos County

White & Baker field: Cardinal Oil 4-E-52 White & Baker, 76 bbl., open tubing, 100-qt. shot, 1,717-49 ft.

Upton County

McElroy field: Gulf 48 Crier-McElroy, 6,966 bbl., open casing, 630-qt. shot, 2,646-2,862 ft.
McCamey field: Trebol Oil 1 Rogers, 243 bbl., pumping, 2,000 gal. acid, 2,600-80 ft.

Ward County

Ward field: Edwards, Moore & Donelly 5 Reynolds, 119 bbl., ¾-in. choke, 200-qt. shot, 1,844-2,027 ft.
Hutchins field: Gulf 151 Hutchins, 508 bbl., open casing, 680-qt. shot, 2,535-2,771 ft.
O'Brien field: Gulf 157 O'Brien, 310 bbl., open tubing, 425-qt. shot, 2,571-2,711 ft.
South Magnolia-Sealy field: Magnolia 4-41 Sealy, 678 bbl., ½-in. choke, natural, 2,885-95 ft., P.B. from 2,918 ft.
Old well drilled deeper: Standard Oil of Texas 3 Durgin, old T.D. 2,539 ft., old initial production 330 bbl. daily, new T.D. 3,640 ft., sulfur water, dry.

Winkler County

Keystone field: S. W. Richardson 3 Keystone, 189 bbl., open tubing, 375-qt. shot, 3,280-3,410 ft.
Sam Weiner 5 Jenkins-Continental, 209 bbl., 36/64-in. choke, 400-qt. shot, 3,325-3,435 ft.

SOUTHERN WEST TEXAS WILDCAT REPORT

Crane County

Gulf 1-F University, SE SE Sec. 22, Blk. 31, University Sur., drilling 9,255 ft.
Gulf 17 Waddell, Sec. 13, Blk. 3, H.&T.C. Sur., 4 mi. S of Sand Hills field, drilling 3,609 ft.
Eastham & Russell 1 McClintic, NE NE Sec. 210, Blk. F, C.C.S.D.&R.G.N.G. Sur., drilling 180 ft.

Crockett County

Moore & Olson 2 Noelke, 495 ft. from N and 2,548 ft. from W lines, Sec. 77, Blk. GG, T. W. Carter Sur., T.D. 1,217 ft., flowed 25 bbl. per hr., S.I.
I. T. I. O. Roy Henderson, NW SE Sec. 33, Blk. ST, 2,000 ft., drilling 590 ft.
Geo. T. Morris 1 Brock Hoover, SW SE Sec. 99, Blk. 1, I.&G.N. Sur., 2,000-ft. test, drilling 417 ft.

Culberson County

Cecil Cothrun 1 Casey-Rounsoville, Sec. 7, Blk. 104, P.S.L. Sur., drilling 1,276 ft. and carrying 300 ft. water.

Ector County

Stanolind 1-B W. F. Cowden, SE W¼ Sec. 12, Blk. 44, Twp. 1n, T.&P. Sur., deep Holt lime test to 7,000 ft., drilling 6,170 ft.
Cities Service 1 F. V. Addis, SW SE Sec. 34, Blk. 43, Twp. 2s, T.&P. Sur., show oil 4,050-80 ft., tested dry, prep. drill deeper, below 4,113 ft., T.D.

Loving County

H. C. McAuley 1 E. Hall, SE Sec. 60, Blk. 7, W.&N.W. Sur., drilling 3,350 ft. and showing sulfur water.
Sloan & Zook 1 T.&P. Trust, SW SE Sec. 37, Blk. 56, Twp. 1s, T.&P. Sur., 3¾ mi. NE of Tunstill gas well, drilling 2,916 ft.

(Continued on Page 89)

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Pat. Pending

Kearny and Smith Co. Wildcats Started; Trapp Extended

By ROBERT INGRAM

THE spring drilling campaign was apparently getting under way in Kansas this week with the location of tests in raw areas in the far west and far north in addition to the normal activity near producing fields. In the far west, Stanolind Oil & Gas Co., production subsidiary of the Standard Oil Co. of Indiana, announced it would drill in northwestern Kearny County on a well-known geophysical structure at 1 Bollinger, E½ SE SW 15-21-38w.

The proposed drill site is a little more than ½ mile west of the Stanolind 1 J. M. Judd, SE SE 15-21-38w, which went to a total depth of 6,041 ft. to the pre-Cambrian during 1940. The Judd test attracted considerable attention when scouts reported stains in the Topeka lime, but it was abandoned after testing through perforations in the Mississippian lime, the also extended again at Earl F. Wakefield et al 1 Miller, E½ NE SE 17-16-13w, a mile east of former pool limits. The well was given a potential of 2,222 bbl. after acid treatment in the Arbuckle dolomite penetrated to 3,400 ft.

SUMMARY OF COMPLETIONS

Kansas

	No.	Bbl.	Footage
Oil wells: Hall-Gurney	2	2,612	6,191
Kraft	1	2,046	3,307
Stoltenberg	1	120	3,322
Trapp	1	2,222	3,841
Burnett	1	250	3,394
Other fields	15	17,692	49,726
Gas wells: Fields*	3	*28.6	9,742
Dry holes: Fields	5	.....	15,535
Wildcats	1	.....	3,367
Total	30	.....	96,425

*Million cu. ft.

Lansing-Kansas City lime series and the Topeka. Apparently the structure warrants further testing.

Smith County.—Meantime a wildcat just a few miles south of the Nebraska State line was started at Blair et al 1 Koch, SE SE SE 21-2-11w, in Smith County, far removed from any present production and probably on the extreme northeast flank of the Barton arch or Central Kansas uplift. While the Blair test is considerably east of the area on which the major companies have centered their attention during recent weeks, it marks the first new wildcat of the year in the northern part of the state.

Northwest Watched for Big Play

Oil men of both Kansas and Oklahoma are looking to this area and western Nebraska for the big play of the coming season. Leasing and preliminary exploration has been carried on on both sides of the Kansas-Nebraska line in a big way during the past several months.

Thomas County.—Another test in the western part of the state which has been watched closely, Alva Billings 1 Ryan, E½ NE SE 27-8-32w, southeast of Colby in Thomas County, was underreaming 6⅝-in. casing set at 3,772 ft. An oil show was reported at 3,765 ft., total depth.

North Emmeran.—In northeastern Ellis County, the North Emmeran pool was opened by G. A. Stearns and Stearns Drilling Co. 1 Witt, S½ NE NW 28-12-16w. After a swabbing test, the discovery well was rated at 168 bbl. a day potential from the Lansing series at a total depth of 3,626 ft. The new pool is 1½ miles north of the Emmeran pool proper, and 4 miles southwest of the Blue Hill pool, and is the third new pool for the state this year.

Hagen.—At the Hagen pool of southeastern Barton County, Herndon Drilling Co. extended production ⅛ mile northeast at 1 Hagen, N½ NE SW 20-20-11w. On an official test the well drew an initial potential of 330 bbl. a day from Arbuckle dolomite penetrated to 3,344 ft. The discovery well is located in the southwest corner of the same section.

Trapp.—Production limits of the Trapp pool were

KANSAS COMPLETIONS

Barber County

Whelan pool: Lario 1-B Nuckolls, SE SE 19-31-11w, dry, T.D. 4,436 ft., Mississippi lime 4,337 ft.

Barton County

Hagen pool: Herndon 1 Hagen, N½ NE SW 20-20-11w, pumped 339 bbl., Arbuckle 3,322-44 ft.
West Silica pool: Continental 2 Scheufler, C NW 24-20-12w, pumped 1,484 bbl., Arbuckle 3,322-50 ft.
Trapp pool: Wakefield 1 Miller, NE NE SE 17-16-13w, pumped 2,222 bbl., Arbuckle 3,828-41 ft.
Prusa pool: B. B. & M. 5 Esfeld, SW SW SE 28-16-11w, 3,000 bbl., Arbuckle 3,373-75 ft.
Shell 1 Harzman, NE NE NW 33-16-11w, swabbed 314 bbl., Arbuckle 3,346-56 ft.
Feltes pool: Phillips 2 Weber, N½ SW NW 13-16-12w, pumped 162 bbl., Arbuckle 3,328-35 ft.
Kraft pool: Texas 8 Disque, SE NW SW 3-17-11w, pumped 2,046 bbl., Arbuckle 3,289-3,307 ft.
Wildcat: C. Pigott et al 1 Beran, E½ NE NE 24-17-12w, dry, T.D. 3,367 ft., at 3,116-22 ft. bailed 5 bbl. oil per hr., and at 3,210 ft. bailed 1 bbl. an hr., Lansing 3,045 ft., Sooy 3,310 ft., Arbuckle 3,375 ft.

Elk County

Miscellaneous: Mid-Plains 1 Holmes, SW SE NW 20-28-11, dry, T.D. 1,287 ft. in sand.

Ellis County

Burnett pool: Dickey 1-C Henderson, W½ NW NW 6-11-17w, dry, T.D. 3,556 ft., Simpson shale 3,537 ft., Arbuckle 3,554 ft.
Darby Petroleum 1-D Peavey, N½ NW NW 19-11-17w, pumped 250 bbl., Arbuckle 3,360-94 ft.

Ellsworth County

Stoltenberg pool: Beardmore 6 Talsky, W½ NW NE 8-16-10w, pumped 120 bbl., Arbuckle 3,313-16 ft., T.D. 3,322 ft.
Bloomer pool: Magnolia 4 Zink, N½ NE SW 32-17-10w, pumped 505 bbl., Arbuckle 3,224-45 ft.
Edwards pool: Continental 3 Janzen, S½ S½ SW 22-17-8w, 3,000 bbl., Arbuckle 3,234-46 ft.
Wilkins pool: Cities Service 4 Wessler, W½ E½ SE 19-17-9w, pumped 205 bbl. in 14 hr., Arbuckle 3,226-42 ft.

Finney County

Holcomb gas field: Northern Natural Gas 2 Brown, C SW 20-25-34w, 11,000,000 cu. ft. gas, pay 2,530-2,688 ft., T.D. 2,729 ft.

Greenwood County

Severy pool: Charles Seaney 1 Jabes, NW NW SE 17-28-11, pumped 135 bbl., Kansas City lime 1,221-24 ft.

McPherson County

Ritz-Canton pool: Eldorado Pipe & Supply 4 Seller, SW SW 19-19-1w, dry, 3,010 ft., Topeka 1,775 ft., Mississippi 2,940 ft.

Pratt County

Cairo pool: Skelly 1-C Goyen, C N½ 8-28-11w, Viola 4,212-28 ft., T.D. 4,238 ft., 9,251,000 cu. ft. gas.

Rice County

Chase pool: McPherson Drilling 1 Cannon, NE NW SE 8-19-9w, 3,000 bbl., Arbuckle 3,240-43 ft.
Geneseo pool: Continental 3-A Hamilton, SE NW NW 19-18-7w, pumped 2,270 bbl., Arbuckle 3,220-27 ft., T.D. 3,228 ft.
Continental 4 Powell, SW NW NW 31-18-7w, pumped 150 bbl., Arbuckle 3,182-90 ft., T.D. 3,241 ft.
Continental 7 Ainsworth, SW NE SE 24-18-8w, swabbed 108 bbl. in 2 hr., Arbuckle 3,124-98 ft.
Keesling pool: Colorado Petroleum 1 Keesling, W½ SW SE 3-20-9w, dry, T.D. 3,246 ft., Arbuckle 3,231 ft.

Rooks County

Laton pool: Broadview 2 Beardmore, S½ SE SW 2-9-16w, swabbed 20 bbl. per hr., Lansing 3,183-3,258 ft.

Russell County

Hall-Gurney pool: Billings 2-B Herbel, SW SE SW 26-14-14w, pumped 804 bbl. in 8 hr., Gorham sand 3,163-78 ft.
Landon et al 5 Boxberger, SW NW SE 26-14-14w, pumped 1,808 bbl., Lansing 2,897-3,013 ft.

Stafford County

Bedford pool: British-American 2 Meyer, NW SW NE 28-23-12w, 3,000 bbl., Arbuckle 3,828-41 ft.

Stevens County

Stevens gas field: Northern Natural Gas 1 Boles, NW NW SE 26-32-35w, 8,300,000 cu. ft. gas, pay 2,632-2,765 ft., T.D. 2,775 ft.

KANSAS DRILLING REPORT

Barton County

Isern Brothers 1 Lillard ..... W½ SW SE 6-16-11w
Topeka 2,605 ft., Lansing 2,968 ft., conglomerate 3,255 ft., conglomerate sand 3,258-60 ft. show oil, cored sandy shale and cherty limestone with no show 3,260-65 ft., Arbuckle 3,271 ft., cored 3,274-78 ft.
Fred Steckel 1-A fee ..... S½ SW NE 11-20-12w
T.D. 3,379 ft., 100 ft. oil in hole, acid, no increase, no test.

Brown County

McAlpine et al 1 Tyler ..... NE SW SW 4-3-15e
S.D. 1,000 ft.

Ellis County

Stearns 1 Witt ..... S½ NE SW 28-12-16w
T.D. 3,626 ft., swabbed 56 bbl. oil in 4 hr.

Ellsworth County

Pryor & Lockhart et al 1 Weisenthal ..... SW SE NE 30-15-10w
Fort Riley 1,475 ft., 10-in. 1,823 ft.

Graham County

Gulf 1 Boller ..... E½ SE SE 29-7-22w
Anhydrite 1,875 ft., drilling.

Greenwood County

Hughes 1 McVay ..... SW NE NE 34-26-13e
Drilling 300 ft.

Kearney County

Stanolind 1 Billinger ..... E½ SE SW 5-21-38w
First report.

Leavenworth County

Caufield & Sullivan 1 Ragan .... SW SW SE 19-10-20e
Stains 1,861-67 ft., casing 2,122 ft., set packer 2,070 ft., stains 2,081-88 ft., Arbuckle 2,163 ft., stains 2,164-87 ft., T.D. 2,209½ ft., fishing.

Pratt County

Stanolind 1 Hartsell ..... E½ NW NE 3-26-12w
First report.

Rice County

Hinkle Oil 1 Kitchen ..... W½ NW NE 11-18-9w
Lansing 2,883 ft., drilling 3,152 ft.
Bradley 1 Roolf ..... N½ NW NW 24-18-10w
Topeka 2,528 ft., Lansing 2,947 ft., drilling 3,100 ft.
Buntington, Dowling & Skow 1 Mantz ..... W½ SW NE 17-19-10w
T.D. 3,345 ft., bailed 5 gal. oil, acid, bailed 2 gal. oil an hr.
A. D. Cochran et al 1 Miller .... N½ NW NW 31-20-9w
8-in. 243 ft., drilling 1,580 ft.
Ewers-Simpson et al 1 Bundy ..... SW SW 12-9-22w
Lansing 3,564 ft., Arbuckle 3,869-79 ft., cored 3,874-79 ft., running casing.

Russell County

Earl Wakefield 1 Holland ..... E½ NE SE 30-13-13w
8-in. casing 2,335 ft., some gas and 4 bbl. water per hr. 2,380 ft., underreaming 8-in. at 2,400 ft.
Shell 1 Ruby ..... NW NW NE 36-14-13w
8-in. casing 628 ft.

Smith County

Blair et al 1 Koch ..... SE SE SE 21-2-11w
First report.

Stafford County

Earl Wakefield and Atlantic 1 Prescott ..... W½ NW SW 32-23-14w
Drilling 3,440 ft.
Fain 1 Thole ..... E½ SE SE 23-21-12w
Cored porous dolomite with fair saturation 3,602-07 ft., 5-in. casing 3,593 ft., standard tools.
Landon & Faulkner et al 1 Shaeffer ..... W½ NW SW 3-21-13w
10-in. casing 273 ft., anhydrite 740 ft., drilling 1,300 ft.

Sumner County

Benedum-Trees 1 Landwehr ..... E½ SE SE 17-32-1e
Drilling 2,340 ft.
Sinclair Prairie 1 Gibson ..... SE SE NW 29-34-3e
Drilling 2,675 ft.

FOREST CITY BASIN

ST. JOSEPH, Mo., Feb. 10.—Activity in the Forest City basin was generally quiet the past week, save for operations by Ohio Oil Co. at Falls City. This company cemented pipe in Hunton lime pay at its 7 Sandrock well in NW NE SW 20-1n-16e, after finding the formation at 2,232 ft. Plug was to be drilled over the week end. Meanwhile the company staked location for 1 Bahr in SE SW SE 7-1n-16e, at the north edge of the pool. This well will be a north offset to the Pioneer Drilling Co. 1 Boice producer. No. 7 Sandrock is scheduled to be the thirty-second producer at Falls City.

Richardson County.—Nothing of consequence happened in western Richardson County. McNulty & Bass failed to get production in Viola lime in 1 Cander in C SW SW 15-2n-13e, 2 miles south of Humboldt. Lost casing prevented the test. They plugged back to test lower Hunton, but found only water. Upper Hunton likewise contained no oil. Abandonment is expected.

(Continued on Page 80)

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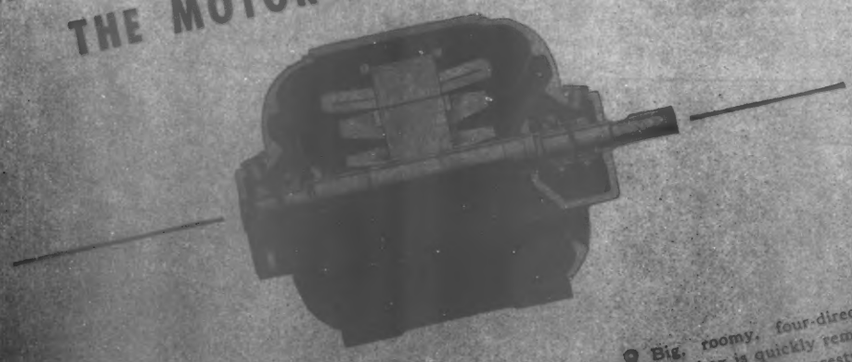

1 One-piece, cast-iron frame and rigid cast-iron end shields protect the motor against external blows and accidental abuse.

2 Enclosed construction protects against entry of falling objects and dripping liquids; keeps chips and the like from vital motor parts.

3 Low-velocity, double-end ventilating system provided by fans cast integrally with rotor winding keeps the motor running cool and prolongs insulation life.

4 New winding methods give shorter end turns, reduce the number of internal connections, and improve characteristics.

5 Features that add to convenience in installing include a stator which can be assembled with the conduit box on either side, and four-position end shields.

6 Synthetic-resin insulating varnish, with exceptional bonding strength and high resistance to heat, bonds the conductors together and prevents movement of the windings.

7 Steel-shell bearing linings with hard-tin-babbitt are of new design and have a method of grooving which provides positive lubrication for either direction of rotation.

8 New and simple ball-bearing mounting assures correct alignment and exclusion of foreign materials. Easily cleaned and regreased by means of the G-E pressure-relief system.

9 Big, roomy, four-direction conduit box is quickly removed from its base to give unrestricted working space for making connections. Leads are flexible and clearly marked.

10 Formex wire—the toughest magnet wire ever developed—assures a continuous dielectric film under the most severe conditions. Formex is highly resistant to abrasion, moisture, varnish solvents, and heat aging.

11 End windings are coated with Glyptal No. 1201 red, providing a tough, hard finish that is highly resistant to heat, moisture, oil, and abrasion.

12 One-piece cast-aluminum rotor winding with fans cast integrally is practically indestructible, has no joints, and gives a cool-running low-inertia rotor.

13 All laminations, both in stator and rotor, are annealed for low iron losses and uniform characteristics. Special rotor treatment improves operating characteristics.

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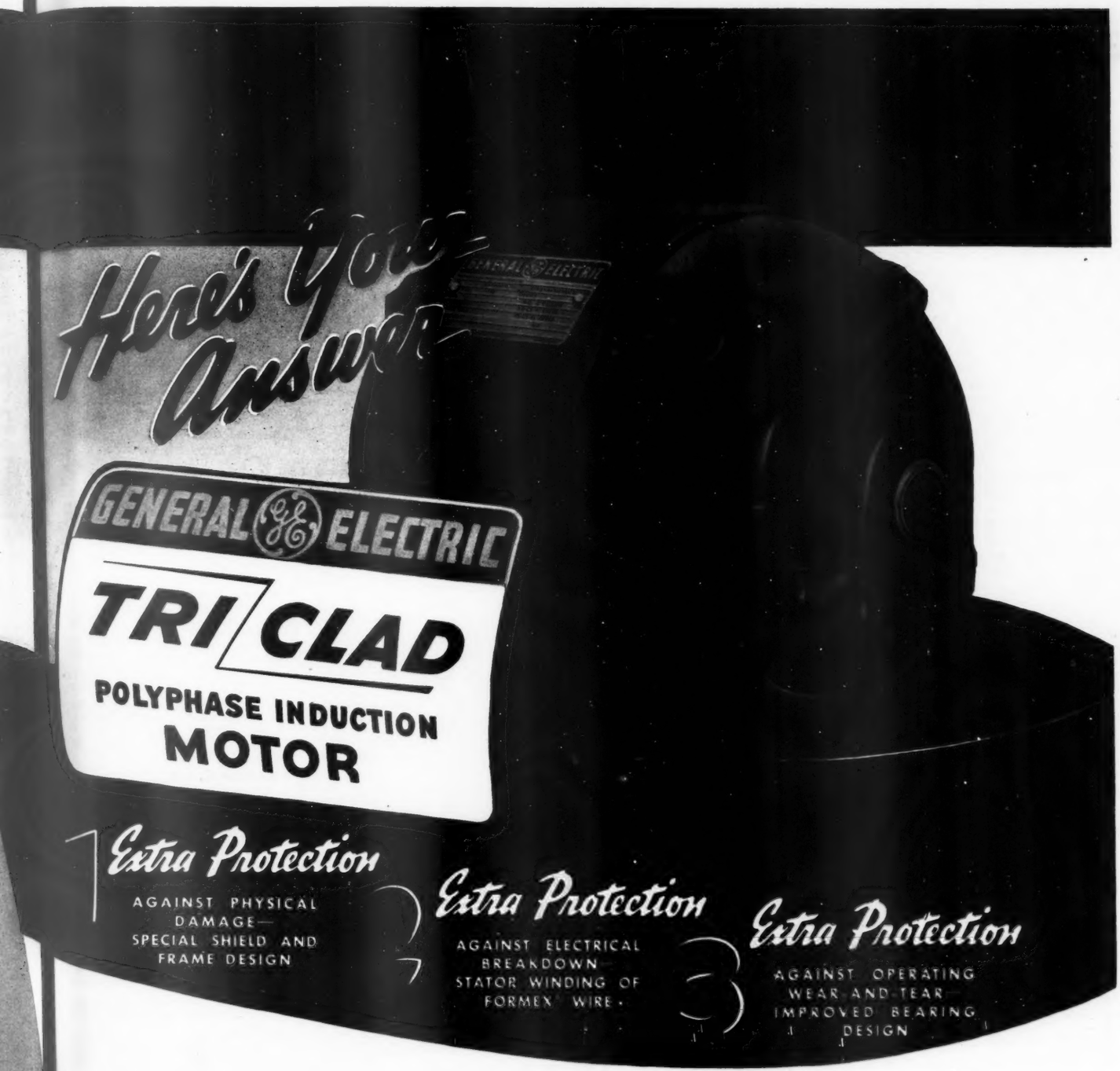

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GENERAL ELECTRIC

750-25

By

STAFF CORRESPONDENT

Trenton Test at Salem Makes Small Producer on Pump

MATTOON, Ill., Feb. 10.—Paul Rossi 8 Brooks, discovery well of Trenton lime production in the Salem field, was completed early last week, culminating more than 2 weeks of unsuccessful attempts to correct pumping difficulties which beset the well after it was acidized. The well pumped 130 bbl. in an initial production test but later increased to 242 bbl. a day. The initial production test was made following a shot of nitroglycerine. Rossi, however, expressed the belief that the Trenton formation may be more productive if it is neither acidized nor shot. Most of the operators in the area have had little experience in producing from the formation and a great deal of experimenting will probably be necessary before best results can be obtained.

The next Trenton completion in the pool will apparently be Magnolia 32 Sam Shanafelt, an offset to Rossi's discovery well. Casing was cemented to 4,508 ft. after the Trenton was topped at 4,504 ft. At the end of the week the well was still drilling into the formation after encountering saturation at 4,545 ft. More than 200 ft. of oil had risen in the hole while the well was drilling in the formation.

New White County Pool

A new pool was discovered in 10-7s-9e of White County last week by Mabee Oil & Gas 1 Knight which pumped 40 bbl. of oil in 6 hours from the Tar Springs formation. The discovery well is only a short distance north of the Gallatin County line and opens the fifteenth pool in White County. Mabee is starting a second test in the area and Bradshaw 1 Union Ridge Cemetery is drilling as a south offset to the discovery well.

White County has several other wildcat tests which are being closely watched at the present time. Ralph Halbert 1 Hubele, NE NW SW 7-6s-11e, showed 242 ft. of oil and 400 ft. of salt water in a 20-minute drill-stem test of the Palestine sand after the drill had passed through most of the oil saturation in the sand. Operators were coring in the Aux Vases sand at 2,866 ft. at the end of the week. The well is about 2½ miles from production and seems definitely to prove profitable saturation in the Palestine in the immediate area.

The other wildcats included Skelly 1 E. Winter, formerly Herndon 1 E. Winter, NW NW SW 18-4s-10e, now near completion in the Aux Vases sand after a show of oil and gas and Robinson 1 Metcalf, SE NW SE 31-3s-11e, which was drilling near the McClosky at the end of the week. The Robinson well previously encountered an oil show in the Tar Springs at 2,356-60 ft.

Franklin County

E. S. Adkins 1-B Orient Coal, a Franklin County wildcat, is shut down awaiting completion of a concrete pump foundation. This well, after pumping 75 bbl. of oil and water, was drilled deeper and shot with 8 qt. at 2,050-68 ft. The well filled with 500 ft. of oil after the shot. Adkins 1-B Orient is 4 miles from production in the new Benton pool and successful completion will mean a sizeable extension of this pool.

Adkins 2 Orient Coal, SE SW SE 24-6s-2e, in the new Benton pool, swabbed 176 bbl. from the Tar Springs in about 30 hours. The well was being prepared for a shot at the end of the week. Shell 1 T. M. McKemie, 24-6s-2e, is near completion in the same field. The only producer in the Benton pool at the present time is E. S. Adkins 1 Orient Coal, discovery well of the pool, which is producing about 400 bbl. a day from the Tar Springs.

Devonian Test

W. S. Tatum has staked location in SE NE SW 7-4n-2w, on the S. W. Andrews farm, Bond County, for a wildcat Devonian test. J. J. Broadus, contractor, drilled a dry hole to 2,450 ft. about 8 months ago on the H. D. Cartmell farm, 1½ miles north and 1½ miles east of the Andrews location. Another well, 1 Theo Wise, drilled last July about 1½ miles south of the Andrews location, was also dry at a total depth of 2,574 ft.

SUMMARY OF COMPLETIONS

	No.	Bbl.	Footage
Oil wells: East Calvin	8	1,288	21,383
Hoodville	6	1,276	18,353
Louden	4	744	6,306
Mount Carmel	1	554	2,361
North New Harmony	1	180	2,739
Storms	2	247	4,564
West Liberty	1	662	2,847
Other pools	7	389	15,866
Wildcats	1	46	3,325
Dry holes: Fields*	5	.....	12,440
Wildcats	16	.....	35,469
Total	52	5,386	125,653
Recompletions	5	717	.....

*Robinson 1, Mason 1, Inman 1, Dundas 1, Southwest Barnhill 1.

ILLINOIS COMPLETIONS

Bureau County

Wildcat: John Wall 1 F. J. Baird, NW NW NW 9-18n-10e, dry, base Pennsylvanian 525 ft., Maquoketa 780 ft., Trenton 920 ft. (depths corrected), elev. 820 ft., T.D. 980 ft.

Clinton County

Wildcat: A. Niehoff 1 H. Maddux, SE NW NW 22-1n-3w, dry, base Pennsylvanian 749 ft., Glen Dean 855 ft., Benoist 1,193 ft., T.D. 1,202 ft.

Crawford County

Robinson pool: L. A. Plumb 1 Snider, W½ NW SW 27-6n-12w, dry, T.D. 600 ft.

Edwards County

Wildcat: Myers Drlg. Co. 1 A. Wick, NW NW NW 24-2s-10e, dry, Menard 2,300 ft., Waltersburg 2,345 ft., T.D. 2,383 ft.

Tide Water 1 Gawthorp, NE NE NE 13-1s-10e, flowed 46 bbl. oil and 85 bbl. water, 30-qt. shot, perf., McClosky 3,266-78 ft., T.D. 3,325 ft.

Effingham County

Mason pool: Hinkle 1 Gibson, NW SE NW 22-6n-5e, dry, Glen Dean 2,029 ft., Aux Vases 2,376 ft., Ste. Genevieve 2,457 ft., T.D. 2,551 ft.

Fayette County

Louden pool: Magnolia 40 T. C. Clow, SW NW NE 5-7n-3e, flowed 400 bbl., 20-qt. shot, Cypress 1,472-86 ft., 40-qt. shot, Benoist 1,533-51 ft.

Carter 5 Miller, SW SW NE 17-7n-3e, pumped 130 bbl., 60-qt. shot, Cypress 1,490-1,524 ft., 20-qt. shot, Paint Creek 1,564-80 ft.

Magnolia 1 Carter Watson, NE SE SE 33-8n-3e, pumped 82 bbl., 20-qt. shot, Cypress 1,481-1,520 ft., 40-qt. shot, Benoist 1,585-87 ft.

Carter 1 P. Rhodes, NW SW NW 26-8n-3e, pumped 132 bbl., 10-qt. shot, Benoist 1,575-88 ft.

Gallatin County

Omaha pool: Cameron Bros. 1 J. B. Green, NW SE SW 4-8s-8e, pumped 42 bbl., 10-qt. shot, Palestine 1,700-17 ft.

Inman pool: Egyptian T. & T. 3 fee, NE NE SE 16-8s-10e, dry, Ste. Genevieve 2,704 ft., T.D. 2,818 ft.

Wildcat: Snowden-McSweeney 1 Egyptian T. & T., SE SW SE 18-8s-10e, dry, Palestine 1,834 ft., Glen Dean 2,195 ft., Cypress 2,465 ft., Benoist 2,609 ft., Ste. Genevieve 2,704 ft., T.D. 2,818 ft.

Hamilton County

Hoodville pool: Texas 8 Hood, NW SW NE 3-6s-6e, flowed 230 bbl. in 18 hrs., Aux Vases 3,035-58 ft.

Texas 6 Hood, SW NW NE 3-6s-6e, flowed 180 bbl., Aux Vases 3,030-36 ft.

Texas 4 Edwards, SW NE NE 3-6s-6e, pumped 30 bbl., 10-qt. shot, Benoist 2,926-48 ft., 10-qt. shot, Aux Vases 3,029-54 ft.

Ohio 2 O. Matheny, NE NW SE 3-6s-6e, flowed 264 bbl., 10-qt. shot, Benoist 2,952-69 ft., Aux Vases 3,064-68 ft.

Ohio 1 A. E. Moore, SE NE SW 3-6s-6e, pumped and flowed 265 bbl., 10-qt. shot, Benoist 2,959-88 ft., 20-qt. shot, Aux Vases 2,966-70 ft., T.D. 3,083 ft.

Exchange 15 M. E. Friel-C, SE SE SW 34-5s-6e, pumped 307 bbl., Aux Vases 3,043-54 ft.

Wildcat: Exchange 1 A. Silliman, SW NW NW 35-3s-5e, dry, Glen Dean 2,649 ft., Benoist 3,079 ft., St. Louis 3,477 ft., T.D. 3,489 ft.

Marion County

Wildcat: Paul Rossi 8 Brooks, SW NE SW 29-2n-2e, pumped 130 bbl. after shot, T.D. 4,618 ft.

Jefferson County

Wildcat: B. Lewis 1 German, SW NW SW 15-2s-1e, dry, Ste. Genevieve 2,165 ft., T.D. 2,313 ft.

Whisenant & Trenchard 1 Grant, NW NW SW 29-3s-3e, dry, T.D. 2,865 ft.

Jasper County

West Liberty pool: Pure 3 R. Schinn, W½ SE NW 8-5n-10e, flowed 662 bbl., 5,000 gal. acid, McClosky 2,789-2,312 ft., T.D. 2,847 ft.

McDonough County

Wildcat: Vancroft & Bowman 1 W. A. Murray, NW SE SE 8-5n-4w, dry, T.D. 902 ft., elev. 675 ft.

Monroe County

Waterloo pool: C. T. Judd 2 Schuler, SW NW SE 11-2s-10w, pumped 10 bbl. oil and 20 bbl. water, 200 gal. acid and 30-qt. shot 461-74 ft., Trenton 435 ft., T.D. 474 ft.

Richland County

Dundas pool: Pure 1 W. F. Carrin, E½ SE SW 36-5n-9e, dry, Glen Dean 2,338 ft., Aux Vases 2,820 ft., Ste. Genevieve 2,837 ft., T.D. 2,950 ft.

Saline County

Wildcat: Potter 1 Thaxton, E½ NW SW 28-8s-7e, dry, old well deepened from 2,220-2,955 ft.

Shelby County

Wildcat: P. Doran 1 Curry, SE SW SE 21-10n-6e, location abandoned.

O. C. Brunswold 1 Harley-Vantis, SW NW NW 36-13n-3e, dry, T.D. 3,061 ft.

Wabash County

Mount Carmel pool: Shell 1 Risley, SE NE SW 17-1s-12w, flowed 554 bbl. oil and 25 bbl. water, McClosky 2,349-59 ft., T.D. 2,361 ft.

North Griffin pool: J. J. Broadus 3 Epler, NE NE NE 31-2s-13w, pumped 15 bbl., 20-qt. shot, Cypress 2,482-2,501 ft., T.D. 2,513 ft., P.B. 2,501 ft.

Keensburg pool: Continental 2 S. M. Dague, E½ SE NE NW 20-2s-13w, pumped 7 bbl., 15-qt. shot, Cypress 2,427-37 ft., T.D. 2,478 ft., P.B 2,450 ft.

Maud pool: Tide Water 1 Steckler, SW SW NW 26-1s-13w, pumped 35 bbl. oil and 20 bbl. water, McClosky 3,610-17 ft., 2,621-37 ft., deepened from 2,595-2,655 ft.

Wildcat: Exchange 1 M. A. Strasser, SE SW SW 3-2s-13w, dry, Benoist 2,570 ft., Ste. Genevieve 2,720 ft., St. Louis 2,790 ft., T.D. 2,418 ft.

Washington County

McKinley pool: J. L. Murphy 1 Brameier, SW NW NE 29-3s-4w, pumped 90 bbl. oil and 7 bbl. water in 16 hr., deepened from 1,030-44 ft.

Wildcat: Arrow Drlg. 1 Barrenpohl, SW SW NW 34-1s-5w, dry, elev. 434 ft., No. 6 Coal 205 ft., base Pennsylvanian 575 ft., Glen Dean 588 ft., Golconda 675 ft., Cypress 770 ft., Paint Creek 885 ft., Benoist 930 ft., Aux Vases 995 ft., T.D. 1,060 ft.

Wayne County

Boyleston pool: Diamond-Halff 1 T. P. Hanna, N½ SW SE 35-1s-7e, pumped 84 bbl., 500 gal. acid, McClosky 3,224-32 ft., T.D. 3,249 ft.

White County

East Calvin pool: Skelly 2 Crossville, NE NW NE 20-4s-14w, pumped 75 bbl. oil and 25 bbl. water, 45-qt. shot, Benoist 2,686-2,718 ft.

W. W. Gray 1-A H. fee, NW NE NE 20-4s-14w, pumped 100 bbl., 15-qt. shot, Cypress 2,570-93 ft.

Skelly 3 Crossville, NE NW NE 20-4s-14w, pumped 130 bbl. oil and 25 bbl. water, 20-qt. shot, Cypress 2,590-2,600 ft.

Delta Drlg. 1 Boltinghouse, NW NE NW 16-4s-14w, pumped 150 bbl., 60-qt. shot, Aux Vases 2,834-47 ft.

Babler Inv. 2 Hon, NW SE SW 9-4s-14w, pumped 48 bbl. oil and 48 bbl. water, Tar Springs 2,225-33 ft.

Babler Inv. 1 Hon, NE SE SW 9-4s-14w, pumped 600 bbl., 40-qt. shot, T.D. 2,861 ft., P.B. 2,856 ft., 10-qt. shot.

Tide Water 4 O. R. Evans, NW NE NW 4-4s-14w, pumped 85 bbl. oil and 33 bbl. water, 2,000 gal. acid, McClosky 2,895-2,900 ft.

Arrow Drlg. 2 Hon-B, SW NE SW 33-3s-14w, pumped 100 bbl., 40-qt. shot 2,618-28 ft., T.D. 2,631 ft.

French & Lavender 2 Hahn, SW NE SE 32-3s-14w, location abandoned.

Spellacy et al 1 Hon-E, SW SE SW 9-4s-14w, pumped 115 bbl., 28-qt. shot Aux Vases, old well drilled deeper.

Cherry & Kidd 3 Calvin, SW NE NE 8-4s-14w, old well drilled deeper, pumped 347 bbl. from Aux Vases and Benoist, 30-qt. shot, Aux Vases 2,804-24 ft., T.D. 2,829 ft.

South New Harmony pool: Bell Bros. 1 E. H. Morris, NW SW NW 21-5s-14w, pumped 116 bbl., natural, Tar Springs 2,348-72 ft.

Herald pool: Mabee 1 Knight, SW SW SE 10-7s-9e, pumped 115 bbl. in 22 hr., T.D. 3,063 ft., P.B. 2,266 ft.

Storms pool: Exchange-Ohio 14 S. A. Price, NW NW NW 12-6s-9e, pumped 172 bbl., 10-qt. shot, Waltersburg 2,265-81 ft.

C. Crosby 2 C. F. Rebstock, NE NE SW 11-6s-9e, flowed 75 bbl., 15-qt. shot, Waltersburg 2,275-83 ft.

South West Barnhill pool: Schenhaisen & Underwood 1 W. B. Fox, W½ SW SW 3-3s-8e, dry, Glen Dean 2,577 ft., Golconda 2,941 ft., Aux Vases 3,332 ft., Ste. Genevieve 3,390 ft., T.D. 3,521 ft.

North New Harmony: Superior 8 H. E. Given, SW NW SW 34-4s-14w, pumped 180 bbl., 140-qt. shot, Benoist 2,696-35 ft., T.D. 2,739 ft.

Wildcat: O'Meara 1 F. M. Hon, SE SW NE 32-3s-14w, dry, Benoist 2,782 ft., T.D. 2,818 ft.

Jungbecker 1 J. W. Hays, SE SE SW 16-7s-10e, dry, Ste. Genevieve 2,822 ft., T.D. 2,948 ft.

A. C. Burgen 1 Mary Kramer, SE SW NE 36-3s-8e, dry, Kincaid 2,220 ft., Glen Dean 2,805 ft., Golconda

2,908 ft., Paint Creek 3,186 ft., Aux Vases 3,348 ft., Ste. Genevieve 3,415 ft., T.D. 3,517 ft.
C. A. Evarts 1 E. Brown, SE NE NW 29-5s-14w, dry. T.D. 2,778 ft.

ILLINOIS DRILLING REPORT

Bond County

Haines & Jackson 1 Hunter.....SW SE SE 1-4n-4w Skidded rig 14 ft. west, S.D.
Woodruff (was Henderson) 1 Harwood ..... NE NE SE 36-7n-4w Rig.

Bureau County

F. E. Webb 2 Abrahams .....NE NE NE 24-18n-8e Drilling 394 ft.

Clay County

S. L. Dedman 1 Crews est. .....NE NE NW 9-4n-5e Material.

Clinton County

Hughes 2 Holman .....NE SW SE 10-2n-1w Underreaming 8-in. 920 ft.
Kreigh 1 Kampworth .....NE NW NW 8-1n-3w Pumping, T.D. 1,000 ft.
J. F. Ashoff 1 Lampen ..... NW NW NW 16-1n-2w Drilling 456 ft.

Fayette County

P. Holleman 1 Kruse .....NE SW NW 36-5n-2e Location.
H. V. Spires 1 Braasch .....NE NE SW 1-5n-2e Location.

Ford County

Nelson et al 1 Erp .....SW NW SE 19-24n-7e Drilling 2,495 ft.

Franklin County

Taylor Drlg. 1 Malkey heirs .....SE SE SE 13-6s-2e S.D. 2,220 ft.
E. S. Adkins 1-B Orient Coal ..... SE NE NW 12-7s-2e Pumped 75 bbl. oil and water, drilled 2,080 ft., 8-qt. shot 2,050-68 ft., 500 ft. oil in hole, swabbing.

Gallatin County

Fredrick & Moore 1 fee .....NE NW NE 8-9s-10e Location.

Greene County

Scroggins 1 McVay .....SW NE 4-10n-11w Drilling 570 ft.

Hancock County

Sam Tate et al 1 J. Rice..... SW NE NW 28-4n-5w Kincaid 270 ft., Chattanooga 380 ft., Hardin 500 ft., Devonian 515 ft., Hoing 540 ft., Maquoketa 588 ft., Fernvale 690 ft., Trenton 725 ft., Decorah 782 ft., Plattin 800 ft., Joaquim 838 ft., St. Peter 943 ft., Shakopee 1,095 ft., Oneota 1,540 ft., sand 1,861 ft.

Jackson County

Barton & Shipman 1 P. Maharry..NE NE SE 20-9s-3w Fishing 545 ft.

Jasper County

Jasper Oil 1 Poehler .....N½ NE NW 7-5n-10e P.B. 2,793 ft., ripped casing 2,760-75 ft., 1 bailer oil, S.D.

Jefferson County

Regent 1 Luchsinger .....SW NE SE 3-1s-2e Rig.

Johnson County

Benedum-Trees 1 Cavitt ..... SW SW NW 24-11s-3e Ste. Genevieve 1,986 ft., Rosiclare 2,055 ft., Fredonia 2,076 ft., drilling 2,650 ft.

Lawrence County

Robinson 1 Sauers .....NW SE NW 20-3n-12w S.D. 5,013 ft.
W. Payne 1 H. Payne .....NW SW NW 20-3n-11w Drilling 1,065 ft.

Madison County

Alch & Carroll 1 Rinkel.....SE NE NW 33-5n-6w Paint Creek 708 ft., T.D. 720 ft.
Wickwire & Camberling 1 Ellis..W½ NW SE 22-3n-6w S.D. 890 ft.

Marion County

J. Dunbar 1 Fischner .....SW SW 27-3n-1e Drilling 120 ft.

McLean County

Funks Grove O. & G. 1 Crawford..NW NW NW 28-22n-1e Salem 815 ft., Burlington 1,052 ft., New Albany 1,220 ft., Devonian 1,465 ft., fishing 1,685 ft.

Montgomery County

J. Warner 1 R. DeFratus.....SW SW SW 18-10n-4w Swabbed 10 bbl. at 602 ft., testing.
H. C. Detrick 1 W. H. Barnes.....NW NE SE 20-10n-2w S.D. 1,205 ft.
A. M. Lacey 2 Luddeke.....SE NW NW 28-9n-4w Drilling 1,642 ft.
Keith 1 Varner.....NE SE SW 3-8n-5w Drilled plug, swabbed oil and water, S.D.

Morgan County

Measely et al 1 Thompson .....NW NE NW 1-16n-11w Drilling 725 ft.
C. L. Hunt 2 Cuddy.....NE NW NW 2-13n-10w Drilling 1,320 ft.

Piatt County

J. S. Feltus 1 Hopkins .....NW NE NE 35-21n-6e S.D. 155 ft.

Richland County

Oilwell Drlg. 1 F. Hilborn.....NW SW NE 24-4n-9e T.D. 2,601 ft., 30-qt. shot 2,586-98 ft., 250 ft. fluid in hole.
Oilwell Drlg. 1 B. W. Blain..... SE NW SW 24-4n-9e Set 5½-in. 2,584 ft., Glen Dean 2,390 ft., Cypress sand 2,584 ft., T.D. 2,585 ft.
M. O'Meara 1 C. Leaner ..... SW NW NE 24-4n-9e T.D. 2,572 ft., 15-qt. shot 2,565-70 ft., swabbed 70 bbl. in 12 hr.
R. Johnson 1 E. Richard .....N½ NE SE 12-2n-9e Drilling 2,268 ft.
C. B. Hill 1 Wood .....NE SE SE 21-2n-14w Old well drilling deeper, old T.D. 2,790 ft., drilling 2,850 ft.

Saline County

Williams 1 A. Smith .....SE SW SW 2-10s-6e Location.

(Continued on Page 74)

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CALIFORNIA FIELD REPORT

By
L. P. STOCKMAN

Wildcatting on Increase in Search for Heavy Crude

LOS ANGELES, Calif., Feb. 10.—As has been expected, leasing activities and wildcat exploration have shown a substantial increase since the first of the current year and a further gain is anticipated. The principal problem confronting operators today is to find suitable areas that are untested but which at the same time offer some degree of possibility. There are of course several hundred thousand acres that remain untested but most discoveries have been made along well-defined lines of folding and until another shear zone is found important discoveries will be relatively few and far between. The effect of shear zones on discoveries is evidenced by the fact that several discoveries were made along the Newport-Beverly shear zone in Los Angeles Basin subsequent to the initial discoveries and several discoveries were made along the Poso fault, the Bear Mountain fault, and the Buttonwillow and Semitropic line of folding in the San Joaquin Valley.

SUMMARY OF COMPLETIONS

	No.	Bbl.	Footage
Oil wells: San Joaquin Valley	9	12,824	88,712
Coastal district	3	1,157	11,890
Los Angeles Basin	4	1,662	20,072
Dry holes: San Joaquin Valley	2	.....	14,921
Coastal district	1	.....	7,387
Total	19	.....	142,982

There is a strong probability that operators will make a determined attempt to develop new fields producing a heavy crude oil during the next few years to meet normal requirements. Most of the recent discoveries during the past few years have been in areas producing a high-gravity refining crude oil. At present there is a wide disparity between the various grades of crude oil produced and this has resulted in a reduction of heavy refinable crude oil and a substantial increase in light refinable crude. If the lighter grades of crude are refined for the purpose of securing fuel oil, refinery residuum, the operation results in a large increase in gasoline stocks. Obviously if production of heavy crude oil would be stimulated the necessary amount of fuel oil could be secured without increasing gasoline production and stocks. The principal deterrent along this line is the fact that fuel-oil prices have been reduced to a minimum and the posted price of heavy unrefinable crude oil is at a low point. The present low price of fuel oil, 75 cents per barrel at Los Angeles Harbor, in the face of a large demand and a consistent reduction in stocks of heavy crude and fuel oil is a condition that is hard to understand. It indicates quite eloquently, however, that some marketers are not interested in the financial aspect of the situation. It is extremely doubtful that gasoline prices could be increased and sustained in the face of existing conditions but a restoration of the 15-cent cut in fuel-oil prices made last year is entirely justified. The unfortunate part of the matter is that most contracts for 1941 delivery have already been consummated at present prices thus precluding the establishment of profits from fuel-oil sales to any large extent.

SAN JOAQUIN VALLEY

Richfield Oil Corp., which has been doing some wildcat drilling immediately south of the Wheeler Ridge field in the extreme southern end of the San Joaquin Basin in Kern County, has abandoned 2 Kern County Land as a duster at 11,681 ft. This is the second well drilled by Richfield in this district but it failed to come up to expectations. A few small showings in the Eocene at 10,870-10,934 ft. failed to produce and showed salt water. This well missed the oil sand found in 1 Kern County Land which actually produced for a month before water prevented further commercial production. Well No. 1 looked very good for a time having cored oil sand in both the Vedder and Eocene. No decision has been reached as to whether Richfield will undertake any additional exploration work in the Wheeler Ridge district although with the logs of two deep wells the company should be able to determine future possibilities. This deep drilling by Richfield apparently proves up the Vedder and possibly the Eocene for Standard Oil Co. which controls all but a very small part of the Wheeler Ridge field. This exploratory work is also interesting because Continental Oil Co. has secured an assignment of about 2,500 acres from the Reserve Oil & Gas Co. in the Tejon district in southern Kern County and will drill a wildcat soon in 28-11n-19w. Continental's newly acquired acreage is located north of several holes drilled a few years ago by Reserve Oil & Gas Co. and the Petrol Corp. This acreage has considerable promise especially in view of the fact that Kern Line Oil Co. which is drilling within a few hundred feet of the new acreage is testing an oil sand. Kern Line's well is down 8,321 ft. and has a 6⅝-in. water string cemented at 8,200 ft. Ohio Oil Co. drilled a dry hole to a depth of 9,654 ft. along the north line of Continental's new lease but this well is far out of line with the present play and does not influence the acreage involved. Reserve Oil & Gas Co., which drilled several wells south of Continental's new lease appeared to have discovered a new field a few years ago but production failed to hold and the company encountered financial difficulties and finally suspended activities. Richfield Oil Corp. holds a lease on acreage south of Kern Line's present wildcat.

SAN JOAQUIN VALLEY COMPLETIONS

Coalinga Southeast Field

R. S. Lytle 75-18-F 18-20s-16e
Flowed 2,580 bbl., 30.6 gravity, 0.4 per cent cut, 1,564,000 cu. ft. gas. 31/64-in. bean. Pressures 1,035/1,220 lb. Elev. 804 ft. T.D. 8,143 ft. 8⅝-in. water string 7,518 ft. 659 ft. 6⅝-in. liner 8,143 ft. Perf. 7,597-8,143 ft. 8,095 ft. 2½-in. tubing. 48 days' drilling time. Kreyenhagen 6,368 ft., green sand 7,495 ft. Gatchell oil sand 7,522-8,137 ft. Bottomed in silt. Fresno County.

Coles Levee Field

Union 58-2 Kern County Land 2-31s-25e
Flowed 520 bbl., 34.4 gravity, 1.5 per cent cut, 487,000 cu. ft. gas. 18/64-in. bean. Pressures 1,150/1,500 lb. Elev. 310 ft. T.D. 9,925 ft. 5½-in. water string 9,452 ft. 492 ft. 4-in. liner 9,920 ft. Perf. 9,465-9,580 ft., 9,610-48 ft., 9,663-9,745 ft., 9,765-85 ft., 9,800-9,920 ft. 9,873 ft. 2-in. tubing. Completed in Stevens oil sand. 50 days' drilling time. N. point 9,314 ft. Top upper oil sand 9,472 ft. Bottomed in lower Stevens oil sand. Kern County.

Greeley Field

Standard 11-26 Kern County Land 18-29s-26e
Flowed 1,245 bbl., 35.8 gravity, 0.1 per cent cut, 1,150,000 cu. ft. gas. 20/64-in. bean. Shut-in pressures 1,550/1,630 lb. Elev. 339 ft. T.D. 11,510 ft. 7-in. water string 11,320 ft. 223 ft. 4¾-in. liner 11,509 ft. 60-mesh perf. 11,319-11,509 ft. 11,484 ft. 2⅞-in. and 2⅞-in. tubing. Top Rio Bravo zone 11,335 ft. Base of grit zone 11,346 ft. Vedder zone 11,414-11,510 ft. 74 days' drilling time. Kern County.

Rio Bravo Field

General Petroleum 5 Caldwell 35-28s-25e
Flowed 1,175 bbl., 39 gravity, 2.2 per cent cut, 600,000 cu. ft. gas. 40/64-in. bean. Pressures 750/775 lb. Elev. 336 ft. T.D. 11,500 ft. 6⅝-in. water string 11,450 ft. 4¾-in. liner 11,500 ft. 125-mesh perf. 11,460-11,500 ft. 11,473 ft. 2-in. tubing. Completed in Rio Bravo zone. Not drilled into Vedder zone. 249 days' drilling time due to mechanical difficulties. Kern County.

Superior 2 Pasadena Realty 33-28s-25e
Flowed 1,520 bbl., 39.6 gravity, 0.1 per cent cut, 1,820,000 cu. ft. gas. 32/64-in. bean. Pressures 1,650/1,750 lb. Elev. 334 ft. T.D. 11,470 ft. 7⅝-in. water string 11,302 ft. 188 ft. 5¾-in. liner 11,470 ft. 120-mesh perf. 11,303-11,470 ft. 11,018 ft. 2½-in. tubing. Rio Bravo oil zone 11,302 ft. Vedder oil zone 11,374-11,470 ft. 40 days' drilling time. Kern County.

Ten Section Field

Shell 65-29-A Kern County Land 29-30s-26e
Flowed 2,548 bbl., 33.6 gravity, 1.4 per cent cut, 2,530,000 cu. ft. gas. 128/64-in. bean. Pressures 160/1,650 lb. Elev. 334 ft. T.D. 8,235 ft. 4½-in. combination string 8,231 ft. Perf. 7,990-8,065 ft., 8,090-8,175 ft., 8,190-8,231 ft. 7,992 ft. 2-in. tubing. Drilled with slim-hole method. 30 days' drilling time. Completed in Stevens oil sand of Miocene age. Kern County.

Tupman Field

Richfield 76-32-A Kern County Land 32-30s-25e
Flowed 1,230 bbl., 32.9 gravity, 0.1 per cent cut, 820,000 cu. ft. gas. Two 1½-in. beans. Pressures 175/400 lb. Elev. 313 ft. T.D. 9,200 ft. 8⅝-in. water string 8,497 ft. 781 ft. 6⅝-in. liner 9,198 ft. Perf. 8,825-9,198 ft. 9,167 ft. 2½-in. tubing. Completed in lower Stevens oil sand. 90 days' drilling time. N point 8,141 ft., top upper Stevens oil sand 8,510 ft. Bottomed in lower Stevens oil sand. Kern County.

Union Avenue Field

Hancock Oil Co. 1 Roberts 6-30s-28e
Pumped 101 bbl., 15.4 gravity, 5 per cent cut. Elev 408 ft. T.D. 5,599 ft., P.B. 5,340 ft. 7-in. combination string 5,358 ft. Gun perf. 5,275-5,315 ft. 4,890 ft. 2¾-in. tubing. Completed in Santa Margarita oil sand of upper Miocene age. 72 days' drilling time. Discovery well in new field. Kern County.

Wasco Field

Standard 6 Mushrush 7-27s-24e
Flowed 3,135 bbl., 37.9 gravity, 0.2 per cent cut, 750,000 cu. ft. gas. 38/64-in. bean. Pressures 1,250/1,500 lb. Elev. 285 ft. T.D. 13,130 ft. 6⅝-in. water string 13,055 ft. 105 ft. 4¾-in. liner 13,128 ft. 60-mesh perf. 13,069-13,130 ft. Completed in Vedder zone. Bottomed in oil sand, 92 days' drilling time. Kern County.

Wheeler Ridge Field

Richfield 2 Kern County Land 28-11n-20w
T.D. 11,681 ft. Abandoning. Cored 64 ft. of Eocene oil sand 10,862 ft.; tested wet. Production test showed formation salt water. 6⅝-in. water string cemented 10,862 ft. Drilled out too deep for water shutoff test. 9⅝-in. casing cemented 4,914 ft. as protection string. Kern County.

SAN JOAQUIN VALLEY OUTPOSTS

Coles Levee Field

Standard 20-8 Kern County Land 5-31s-25e
T.D. 9,490 ft. in Stevens oil sand and shale. Preparing to complete. Top oil sand 8,890 ft. 8⅝-in. casing cemented 8,880 ft. with 1,477 sacks cement. Kern County.

Standard 20-9 Kern County Land 9-31s-25e
Rigging up rotary tools. Kern County.

Elk Hills Field

Standard 42-31-S 31-30s-24e
Drilling 5,360 ft., sand and shale. Elev. 1,122 ft. Kern County.

Standard 44-29-S 29-30s-24e
T.D. 1,204 ft. Cemented 9⅝-in. casing at 1,204 ft. Drilling ahead in surface sand. Elev. 866 ft. Located east of Hay section of Elk Hills field, Kern County.

Kettleman North Dome Field

Standard 1-1-U fee 1-23s-16e
T.D. 10,968 ft. Flowed 4,000 bbl. salt water. Recemented 6⅝-in. casing 10,865 ft. Kings County.

Midway-Sunset Field

North American Oil Consolidated 1-28 W.P. ... 28-32s-23e
Drilling 5,390 ft. in hard shale with streaks of impervious sand. Kern County.

Paloma Field

Western Gulf 12-12-B Kern County Land ... 12-32s-26e
T.D. 10,534 ft. in Stevens oil sand. 7⅝-in. water string cemented 10,230 ft. Completing. 13⅜-in. surface pipe cemented 1,229 ft. Kern County.

Strand Field

Associated 25-7-E Kern County Land 7-30s-26e
Drilling 11,805 ft. in hard shale. Top sand at 11,510 ft. may be Olcese. Kern County.

SAN JOAQUIN VALLEY WILDCATS

Cantua Creek District

Texas 27-13 Southern Pacific 13-17s-15e
Drilling 7,260 ft. in sand and shale. Fresno County.

Buena Vista Hills District

Honolulu 25-P fee 10-32s-24e
T.D. 12,104 ft. Lost and recovered fish. Reaming. Spot coring and drilling in shale with streaks of hard sand and silt giving no cuts. Kern County.

Buttonwillow District

Texas 47-15 Southern Pacific 15-29s-24e
Drilling 6,471 ft. in sand and shale. Kern County.

Shafter District

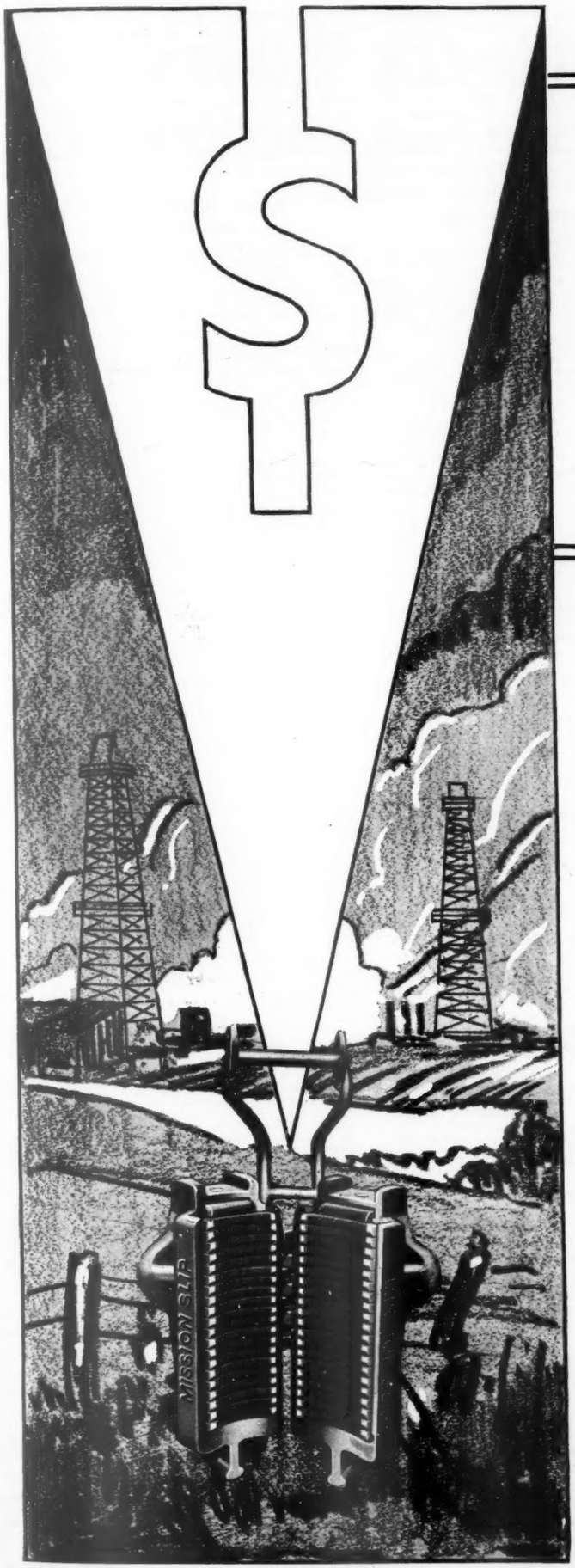
Continental 2-C Kern County Land 35-27s-24e
Drilling 1,976 ft. in sandy shale. Kern County.

Tejon District

Richfield 1 Tejon ranch 2-10s-19e
Drilling 10,100 ft. in gray sand and shale. Kern County.

LOS ANGELES BASIN

The next week should see production tests made on two Los Angeles Basin deep tests that have shown some encouragement. In the Inglewood field, 1 Smith which is being deepened by R. R. Bush Oil Co. for account of Federal Oil Co. has cored about 40 ft. of good-looking oil sand and preparations were under way to conduct an immediate production test. This well, which



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is 300 ft. higher structurally than 1 Sentous which Bush drilled and completed in the southern end of the field, appears almost certain of production. It has shown considerable gas and if clean production is secured the well should be a large producer. No. 1 Smith is located out on the north flank of the structure just outside the productive limits of the field as defined by present productive zones. If this new deep zone extends to the northwest we may anticipate the starting of several wells in the near future. The next well to be drilled will be 1 Merchants of R. R. Bush Oil Co. as the location for this well has already been staked east of 1 Smith provided the latter shows substantial production. Completion of 1 Smith will necessitate offset drilling and thus there is a possibility that the Inglewood field may be revived again as a result of Miocene development. In the southern end of the field, Standard is having considerable difficulty keeping the hole of 3-1 Los Angeles Investment straight and has found it advisable to land a 7-in. protection string at 9,011 ft. This well is at present drilling ahead at 9,050 ft. and has not cored any additional oil sand below the Sentous zone of Miocene age. It is the present intention to drill ahead to the schist basement and then back up and test the Sentous zone if no lower oil sand is found. The Sentous zone found in 3-1 Los Angeles Investment was tight and there is some question whether it is capable of producing commercially. All drilling to date has been around the edge of the Inglewood field but the existence of the Sentous zone around the edges indicates it should be present on top of the structure. It remains to be seen, however, whether it is porous enough to produce commercially.

Rosecrans Outpost

One of the most important wildcats to be started in Los Angeles Basin in several months will begin making hole in the near future. This promising wildcat is 1 Howard Townsite Owners Community which will be drilled by Southern California Petroleum Co. at 122nd Street and Vermont Avenue. The location of this test is northwest of the Athens section of the Rosecrans field and northwest of 1 Athens which Thorley Oil Co. completed in a deep zone in the Athens section of the Rosecrans field. It is between Thorley 1 Athens and El Roy 1 Westmore Land, an outpost located about 1 mile northwest of nearest production at Athens and it should determine whether there is any commercial production in the interval between these two areas. Shell Oil Co., Inc., and Union Oil Co. have considerable acreage under lease in this area and Petroleum Securities interests have 640 acres in fee which will probably be developed by R. S. Lytle as operator. Standard Oil Co. has held several hundred acres under lease southwest of this location for several months but has not made any move to start development work. El Rey 1 Westmore Land is the deepest pumping well in the state at the present time.

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LOS ANGELES BASIN COMPLETIONS

Dominguez Field

R. E. Havenstrite 6 Larronde 32-3s-13w
Flowed 1,120 bbl., 31.5 gravity, 0.5 per cent, 600,000 cu. ft. gas, 36/64-in. bean. Pressures 500/500 lb. Elev. 120 ft. T.D. 7,215 ft. 7-in. water string 7,130 ft. 100 ft. 5½-in. liner 7,215 ft. Perf. 7,135-7,215 ft. 7,109 ft. 2½-in. tubing with packer 7,019 ft. Completed in eighth Callender zone of Miocene age. 39 days' drilling time. Los Angeles County.

Wilmington Field

Fuller Pet. Co. 55-3-E Harbor 32-3s-13w
Pumped 140 bbl., 16.1 gravity, 5 per cent cut. Elev. 40 ft. T.D. 3,665 ft. 8⅝-in. water string 2,983 ft. 722 ft. 5½-in. liner 3,662 ft. Perf. 2,986-3,248 ft., 3,343-3,662 ft. 3,630 ft. 2½-in. tubing. Completed in Ranger zone. 21 days' drilling time. Los Angeles County.
A. D. Mitchell 2 Combate 32-4s-13w
Pumped 118 bbl., 15.5 gravity, 3 per cent cut. Elev. 42 ft. T.D. 3,715 ft. 7-in. water string 3,025 ft. 715 ft. 4¾-in. liner 3,715 ft. Perf. 3,025-3,275 ft., 3,465-3,715 ft. 3,665 ft. 2½-in. tubing. Completed in Ranger zone. 22 days' drilling time. Los Angeles County.
Union Pacific R. R. 168 fee 4-5s-13w
Flowed 284 bbl., 29.7 gravity, 1.8 per cent cut. Elev. 40 ft. T.D. 5,477 ft. 10¾-in. water string 2,629 ft. 471 ft. 4¾-in. liner 5,470 ft. Perf. 5,027-5,126 ft., 5,266-5,323 ft., 5,419-70 ft. 4,983 ft. 2½-in. tubing. 2,596 ft. blank 7-in. liner 5,027 ft. Completed in Ford zone. 42 days' drilling time. Los Angeles County.

LOS ANGELES BASIN OUTPOSTS OR DEEP TESTS

Dominguez Field

Union 79 Callender 32-3s-13w
Drilling 12,460 ft. Los Angeles County.

Inglewood Field

Standard 3-1 L.A.I. 17-2s-14w
T.D. 9,030 ft. Hard Miocene sandy shale with streaks of tight oil sand. Cemented 7-in. casing at 9,011 ft. to aid in keeping hole straight. Los Angeles County.
R. R. Bush Oil Co. 1 Smith 8-2s-14w
T.D. 7,996 ft. Landed 7-in. casing at 7,920 ft. for test of showings. Very gassy sand found on drilling break at 7,950 ft. Top Nodular shale 7,865 ft. Los Angeles County.
R. R. Bush Oil Co. 1 Merchants 8-2s-14w
Derrick built on showing of 1 Smith which is higher structurally than deep drilling in southern end of field where new Miocene zone was found in 1940. Los Angeles County.

Long Beach Field

Union 19 L.B.C. 30-4s-12w
T.D. 10,894 ft., P.B. 10,500 ft. with 70 sacks cement. Completing. 7-in. casing cemented 9,657 ft. with 375 sacks cement. Los Angeles County.

Rosecrans Field

Southern California Pet. Corp. 1 Townsite ..12-3s-14w
Rigging up rotary equipment for well to be drilled north and west of Athens section of field. T. P. Pike Drilling Co. will do actual drilling. Los Angeles County.

LOS ANGELES BASIN WILDCATS

Dominguez-Gardena District

Wood-Mellon 1 Wood 31-3s-13w
Taken over by Vesta Petroleum Co. for further work. T.D. 7,795 ft. P.B. 2,400 ft. Redrilled 6,975 ft. Pumped water with trace of oil. May deepen; awaiting result of 79 Callender of Union Oil Co., a deep test in Dominguez field. Los Angeles County.
Hiles Drilling Co. 1 Grant 29-3s-13w
T.D. 7,666 ft. New derrick erected over old hole. Preparing to clean out and deepen. Los Angeles County.

COASTAL DISTRICT

Barnsdall Oil Co. has staked location for its first well to be drilled on the Los Angeles County jail farm which it leased last week and derrick will be erected in the very near future. Location is in 5-4n-16w which is about 2 miles from the town of Castaic. Barnsdall has almost 4,000 acres under lease in this area of which 2,400 acres comprises the jail farm. The area is north of the San Gabriel fault and the Saugus formation of lower Pleistocene is exposed at the surface in the general region. Recent developments indicate that the productive Modelo which is producing in the Newhall-Potrero, Oak Canyon, and other adjacent fields is rising to the north and apparently thins out to some extent. The Modelo in some parts of the Santa Clara Valley reaches a thickness of 4,000 ft. but what takes place north of the San Gabriel fault remains to be determined by actual drilling. Texas Co. abandoned one of its two coastal district wildcats this week but continued to make good progress in the other. The latter is 2-A Bishop in the Elwood-Goleta district of Santa Barbara County which is rotating ahead in the Vaqueros and will be bottomed in the Sespe. The abandonment was 1 Montgomery in the Oxnard district of Ventura County. This well was abandoned at 7,387 ft. and the log shows the Pico, upper Pliocene, at 6,050 ft., top of the Repetto, lower Pliocene, at 6,370 ft. and top of the Miocene at 6,480 ft. This wildcat was drilled through 907 ft. of Miocene rocks without securing commercial production and did not look any too promising when work stopped. Barnsdall Oil Co. has staked location for 88-11 State, a new well to be drilled in the Elwood field of Santa Barbara County, which it discovered several years ago.

COASTAL DISTRICT COMPLETIONS

Aliso Canyon Field

Associated 23 Porter 27-3n-16w
Flowed 840 bbl., 21.8-gravity, 0.6 per cent cut, 60,000 cu. ft. gas. 12/64-in. bean. Pressures 360/490 lb. Elev. 2,093 ft. T.D. 5,275 ft. 8⅝-in. water string 4,920 ft. 395 ft. 6⅝-in. liner 5,275 ft. Perf. Completed in Modelo of upper Miocene age. 60 days drilling time. Located on Hasley anticline. Los Angeles County.

Oak Canyon Field

Western Gulf 1 Lechler 31-5n-17w
Pumped 100 bbl., 22.5-gravity, cut 20 per cent mud, sand, water and emulsion. Elev. 1,413 ft. T.D. 2,442 ft. P.B. 2,415 ft. Cleaned out to 2,408 ft. 8⅝-in. water string 2,296 ft. 141 ft. 5¾-in. gravel-packed liner 2,408 ft. Perf. 2,349-2,408 ft. Producing from Modelo formation of upper Miocene age. 34 days drilling time. Discovery well. Los Angeles County.

Rincon Field

C. C. M. Oil Co. 42-B Hobson 17-3n-24w
Flowed 257 bbl., 30-gravity, 2.7 per cent cut, 386,000 cu. ft. gas. 32/64-in. bean. Pressures 150/100 lb. Elev. 274 ft. T.D. 4,200 ft. 7-in. water string 3,915 ft., gun perf. 3,475-3,680 ft. 750 ft. 4¾-in. gravel-packed liner 4,199 ft. Perf. 3,453-3,687 ft., 3,808-4,199 ft. 3,450 ft. 2½-in. tubing. Completed in Hobson zone. 26 days drilling time. Ventura County.

Ventura Avenue Field

Associated 116 Lloyd 26-3n-23w
Flowed 319 bbl., 31.3-gravity, 2.2 per cent cut, 726,000 cu. ft. gas. 64/64-in. bean. Pressures 100/500 lb. Elev. 574 ft. T.D. 9,306 ft. 6⅝-in. water string 8,540 ft. 1,003 ft. 4¾-in. liner 9,303 ft. Perf. 8,945-9,303 ft. 8,890 ft. 2½-in. tubing. Completed in 57 zone. Originally completed at 8,940 ft. in September 1940. Deepened to present depth. Ventura County.

COASTAL DISTRICT WILDCATS

Del Valle District

Havenstrite, R. E., 1 Vasquez 21-4n-17w
Drilling 960 ft. in sandy shale. Located southeast of discovery well. Los Angeles County.
Universal Consd. Oil Co. 1 Dennis 21-4n-17w
Derrick. Los Angeles County.

Goleta District

Texas Co. 2-A Bishop 13-4n-29w
Drilling 2,901 ft. in Vaqueros shale. Will drill into underlying Sespe for test. Santa Barbara Co.

Huasna District

Harvey Oil Corp. 2 Huasna 11-32s-14e
Drilling 981 ft. in surface sand. Elev. 1,401 ft. San Luis Obispo County.

Illinois Fields

(Continued from Page 71)

Shelby County

J. Moore et al 1 fee ..... SW SW NE 30-10n-3e
Underreaming 6-in. 1,717 ft.

Tazewell County

Bartlemay 1 Mathis ..... SW NW SW 24-25n-3w
Drilling 730 ft.

Wabash County

Harris & Meyers 1 E. L. Denman ..SW SW SE 17-1s-12w
Perf. 2,390-99 ft., swabbed water, perf. 2,365-74 ft., P.B. 2,039 ft., 20-qt. shot 2,031-39 ft., swabbed 146 bbl. in 17 hr., testing.
J. E. Bauer 1 Sanders ..... SW NE NW 6-1n-11w
Location.
Whiteside 1 Dager ..... SE NE SW 31-2n-11w
Rig.
Hays & Yingling 1 Tanquary ..... NE SE SE 26-1s-14w
Moving in rotary tools.

Wayne County

C. Robinson 1 Leech ..... NW SW NW 14-2s-8e
Old well drilling deeper, old T.D. 3,364 ft., rigging up standard tools.
C. R. Craft 1 J. F. Fischer ..... SE NW NW 34-1s-7e
Fishing 3,160 ft.

White County

Southern Pet. 1 McIntosh ..... NE NW SE 30-3s-8e
Set 10-in. 68 ft.
J. Meyers 1 Hon ..... NE SE SE 20-4s-14w
Rig.
Skelly 1 E. Winters ..... NW NW SW 18-4s-10e
T.D. 3,317 ft., show oil and gas, P.B. 3,175 ft., 5½-in. 3,102 ft., S.D.
R. Warren 1 Brunke-Combe ..... SE SE NW 36-5s-9e
Drilling 1,570 ft.
R. Halbert 1 Hubble ..... NE NW SW 7-6s-11e
Kincaid 1,742 ft., Palestine 2,016 ft., Menard 2,065 ft., Waltersburg 2,132 ft., Vienna 2,197 ft., Tar Springs 2,202 ft., drill-stem test 1,946-2,024 ft., 250 ft. oil and 400 ft. water in hole, drilling 2,297 ft.
Hurton & Wiggins 1 J. G. Bradley ..SE SE NW 32-6s-10e
Set 10-in. 175 ft.
Brehm & Darlen 1 Creek ..... SW NW NW 29-6s-10e
Derrick.
Eason 1 DeLaff ..... NE SW NW 8-8s-7e
Perf. 3,149-59 ft., to swab.

Williamson County

Adkins 1-D Old Ben Coal ..... SE SE SE 4-8s-2e
Moving in rotary tools.

Open Small Gas Pool in Injun In Washington County

By STAFF CORRESPONDENT

PITTSBURGH, Pa., Feb. 10.—During the past week in the lower eastern fields, 25 operations were completed of which 7 were dry, 17 gas wells, and 1 oil producer.

On Chestnut Ridge in South Union Township, Fayette County, New Penn Development Co., William E. Snee et al topped the Tully lime at 5,845 ft. in 3 Summit Hotel and are drilling at 6,004 ft. The Tully extended to 5,915 ft. With a starting elevation of 2,315 ft., this places the top of the Tully at subsea 3,530 ft. or about 168 ft. higher than in 1 Summit, the original test on this structure. Due to the heavy thrust and possibilities of faulting, every test on this structure is a wildcat.

The well nearest to this, 3 Piedmont Coal Co., being drilled by Peoples Natural Gas Co., has reached 6,991 ft., or 190 ft. below the top of the cherty zone in the Onondaga limestone. No additional gas has been picked up and the present volume is about 30,000 cu. ft. only. Allowing for a known crooked hole and if the thickness of the Onondaga chert is normal, the Oriskany should be struck at any time. Here, this company is drilling 4 Piedmont Coal Co. at 2,330 ft. In North Township no added hole was made in 2 J. H. Sorg.

On Big Knob in New Sewickley Township, Beaver County, L. D. McMichael et al reached 3,017 ft. in 1 Elmer Pflug and shut down for a new line.

SUMMARY OF COMPLETIONS

Southwest Pennsylvania

	No.	Bbl.	Footage
Gas wells	4	*1.3	10,794
Dry holes	3	.....	8,866
Total	7	.....	19,660

West Virginia

Oil wells	1	15	1,970
Gas wells	13	*10.6	29,320
Dry holes	4	.....	11,748
Total	18	.....	43,038

*Million cu. ft.

Allegheny County

South Fayette Township: Potts Brothers 1 R. A. Mawhinney, 160,000 cu. ft. gas, Fifth sand 2,499-2,517 ft., gas 2,502 ft., R.P. 200 lb., T.D. 2,700 ft.

Armstrong County

Wayne Township: R. C. Galbraith et al 1 William Alcorn, 21,000 cu. ft. gas, Bradford sand, T.D. 3,230 ft.

Greene County

Morris Township: Romney Rutan et al 2 I. J. Clutter, dry, through Bayard sand, T.D. 3,418 ft.

Indiana County

Brush Valley Township: T. W. Phillips 1 F. M. Ramsey, dry, Bradford sand, T.D. 3,655 ft.

Washington County

North Strabane Township: Carnegie 1 Cleil Gilkerson, 1,075,000 cu. ft. gas, Big Injun sand 1,568 ft., gas 1,627 ft., R.P. 390 lb., T.D. 1,635 ft. This test may open up a small virgin lens in the Injun sand as wells in that vicinity produce from the Fifty-foot or Gantz sands. The nearest Injun sand was drilled several years ago and was located 2 miles SE of this test. It originally gaged about 4,000,000 cu. ft. a day.

South Franklin Township: Foley & Williams 2 Clarence Vankirk, dry, through gas sand, T.D. 1,793 ft.

West Bethlehem Township: J. D. Amos et al 1 Frank Myers, 25,000 cu. ft. gas, Bayard sand 3,031-39 ft., gas 3,035 ft., T.D. 3,229 ft.

WEST VIRGINIA

An important test in Ravenswood district, Jackson County, struck salt water in the Oriskany sand. It was the test of the Columbian Carbon Co. on the F. L. Roliff farm about 3 miles east of Odaville and topped the Corniferous lime at 4,949 ft.; Oriskany 5,068 ft. At 5,074 ft. the salt water was struck which at 5,077 ft. filled up the hole. It is still drilling and at 5,086 ft. The elevation of this test is 661.8 ft. placing the Oriskany 4,406.2 ft. subsea.

This company's test on the F. F. Starcher farm in Ravenswood district was bottomed at 5,424 ft. with the Oriskany sand topped at 5,316 ft. and gas to bottom, final gage 2,199,000 cu. ft. It will be shot at once.

In this district, still another wildcat is starting. Joe Rubin is moving in for a test on the H. A. and H. O. Maddox farm located 2.38 miles west Long. 81° 35′ and 3.28 miles south Lat. 39° 00′. It is approximately 1¼ miles south 50° west of Buttermilk.

In Harrison County the deep rotary test of the Hope Natural Gas Co. on the C. S. Gribble farm in Grant district is drilling in a very hard formation at 9,834 ft. and definitely in the Medina which so far has not been correlated and the top placed.

Braxton County

Holly district: Robinson & Weaver 1 A. L. Morrison, 500,000 cu. ft. gas, Gordon stray sand 2,169 ft., gas 2,169-75 ft., T.D. 2,173 ft.

Gilmer County

Glenville district: McCall Drilling Co. 2 M. E. Arbuckle, dry, will abandon, Big Injun sand 1,772-1,879 ft., T.D. 1,879 ft.

De Kalb district: D. H. Bland 1 Bernard Coberly, 250,000 cu. ft. gas, Injun sand, T.D. 2,125 ft.

Harrison County

Eagle district: Eagle Gas Co. 1 T. L. Lyons, 150,000 cu. ft. gas, Fourth sand 2,655-70 ft., gas 2,662-64 ft., T.D. 2,877 ft.

Lincoln County

Jefferson district: Harmon Gas Co. 1 Minnie F. Adkins, 152,000 cu. ft. gas, Big lime 1,655-1,834 ft., Big Injun 1,834-65 ft., Berea 2,334-59 ft., brown shale 3,357-3,710 ft., shot 3,086-3,710 ft., T.D. 3,710 ft.

Union district: Roy & McComas 1 E. J. Cummings, drilled deeper, 134,000 cu. ft. gas, start 2,052 ft., brown shale 3,055-3,337 ft., T.D. 3,344 ft.

Mingo County

Kermit district: McKinley Trent, tr., 4 Noah A. Stepp, 750,000 cu. ft. gas, Big lime 1,734-1,963 ft., Big Injun 1,963-2,014 ft., gas 1,835-1,963 ft., acidized, T.D. 2,046 ft.

Monongalia County

Clay district: Roy W. Clovis 1 Della Lamley, 134,000 cu. ft. gas, gas sand 1,223 ft., T.D. 1,266 ft.

Putnam County

Curry district: Buff Creek Gas Co. 1 H. A. and A. M. Pullens, 6,000,000 cu. ft. gas, Salt sand 950-1,190 ft., Big lime 1,486 ft., gas 1,541 ft. and 1,582-91 ft., T.D. 1,592 ft.

Pleasants County

Lafayette district: First National Bank St. Marts 2 L. O. Jones, 30,000 cu. ft. gas, Big Injun sand, T.D. 1,950 ft.

Ritchie County

Murphy district: G. L. Ballantine 1 G. S. Tibbs, 700,000 cu. ft. gas, Injun sand, T.D. 1,840 ft.

Cronin & Goodwin 1 H. H. Goff, 1,000,000 cu. ft. gas, Injun sand, T.D. 1,891 ft.

Union district: Phillips Lemon 1 A. F. Mullennax, 15 bbl., Keener, T.D. 1,970 ft.

Roane County

Harper district: W. B. Hughes 2 W. E. Westfall, dry, Salt sand 1,602 ft., show oil 1,691 ft., T.D. 1,705 ft.

Upshur County

Meade district: Cumberland & Allegheny Gas Co. 302 D. F. Harris, 650,000 cu. ft. gas, Gordon sand 2,035-48 ft., gas 2,037-48 ft., T.D. 2,051 ft.

Cumberland & Allegheny Gas Co. 299 S. E. Winemiller, dry, no sand only shells, T.D. 4,345 ft.

Wayne County

Lincoln district: Owens, Libby-Owens 27 Wilson Coal Land Co., dry, Big lime 1,257-1,442 ft., Big Injun 1,442-97 ft., Berea 2,021-51 ft., brown shale 2,691-2,988 ft., brown shale 3,260-3,328 ft., Corniferous lime 3,328-3,819 ft., 58,000 cu. ft. sulfur gas in lime, plugged and abandoned.

Westmoreland district: R. J. Petry 1 A. F. Thompson Manufacturing Co., 176,000 cu. ft. gas, Big lime 1,160-1,270 ft., Big Injun 1,300-80 ft., Berea 1,715-33 ft., brown shale 2,325-2,552 ft., gas 2,330 ft. and 2,500 ft., T.D. 2,600 ft.

Wetzel County

Church district: Null & Moorhead 5 fee, 60,000 cu. ft. gas, Pittsburgh coal 962 ft., Big Injun 2,256-67 ft., Maxton 2,085-92 ft., Fourth 3,168-69 ft., T.D. 3,200 ft.

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TRADE-MARK REGISTERED U.S. PAT. OFFICE

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Woods Co. Test Abandoned; New Wildcat in Okfuskee

By
ROBERT INGRAM

WITH drilling operations at a low ebb for the year, completions were few in Oklahoma during the last week, but a number of important new tests were started or announced. K. G. F. Oil Co. of Shawnee and Portable Drilling Co. of Tulsa started pits and cellar for 1 Camp, SW SW SW 6-11-9, about 1½ miles east of the Dill pool in southern Okfuskee County, on a block of 440 acres over a seismograph high.

The test is to go to the Wilcox sand, or 4,200 ft., and thus will be an attempt to open a new horizon for the Dill area which is now producing from the Cromwell.

Another test was announced on the west flank of the Oklahoma City field by British American and Harper-Turner. It is 1 Shields, Block 57 of the Shields addition in the southwest part of the field on a spread of five city blocks, including the Shields school ground. Application is pending with the city Adjustment Board on two additional locations on the same acreage provided the first well is a producer.

Meantime Atlantic Refining Co. announced location for an offset to its pool opener in the newly named North Little River pool in Seminole County which was officially completed last week. The discovery well, Atlantic and Gus Delaney 1 Clark, NE NE SE 30-8-7, flowed 7½ bbl. an hour, pinched, from the Wilcox sand at 4,272-89 ft. The second well is Atlantic 1 Johnson, NW SW 29-8-7.

SUMMARY OF COMPLETIONS

	No.	Bbl.	Footage
Oil wells: Cement	2	331	7,814
St. Louis	1	65	3,535
Other fields	7	1,820	21,228
Gas wells: Fields	1	*7	5,127
Wildcats	1	*5.5	4,012
Dry holes: Fields	4	.....	12,012
Wildcats	1	.....	8,367
Total	17	.....	62,095
Recompletions	1	48	.....

*Million cu. ft.

Woods County Test Is Dry

Among the completions reported during the week was the abandonment of one of the most closely watched wildcats in the state, Gulf 1 Hess, NE NW 33-23-13w, near the town of Galena in southeastern Woods County. The test was drilled to 8,367 ft. where the second Wilcox sand was hard and dry. There had been some talk of going on to the Arbuckle lime, but Gulf officials reported that the formation was getting harder and costs of drilling were mounting out of reason. Cuttings from the Wilcox showed practically no porosity. But, while the failure threw a damper on immediate hopes for a deep producing field in the western part of Oklahoma, operators continued their exploration for favorable locations that might open new areas or revive old ones.

Cimarron County.—Attention was also turned to Cimarron County of the Oklahoma Panhandle where oil and gas leases on 10,000 acres were recorded by the Pure Oil Co. which last year made an outstanding discovery at the Cumberland pool of Bryan and Marshall counties. The acreage lies in Townships 2, 3 and 4n, Ranges 7 and 8 e.c.m. and is between two other Pure Oil blocks which aggregate 100,000 acres. Immediate testing of the area was not indicated, however, as the leases were on the now customary 10-year basis.

Okfuskee County.—Mud and bad roads held up outpost work in Okfuskee County for several days except in the East Cromwell and Dill pools where field limits are being pushed out steadily. On the south side of East Cromwell, Shell 1 Brewer, SE SW NW 1-10-8e, swabbed 40 bbl. of oil and 177 bbl. of water in 12 hr. from a total depth of 4,073 ft., below the field's normal depth. It will probably limit the pool on the south. In the Dill pool, Shell was starting 1 Taylor, SW SW SE 26-12-8, on the north extension of the trend. Several other operations are under way in both areas.

Hobart Wild Gasser Killed

Meantime, operators at Gled Oil et al 3 Watkins, SW NW NW 20-7-17w, apparently succeeded in killing the wild gas which blew out a week ago. It was the second wild well for the area. The well blew out while crews were drilling at about 900 ft. Big gas blew tools out of the hole and wrapped the drilling line around the derrick. Volume was estimated as high as 30,000,000 cu. ft. a day. Operators pumped everything available into the hole and in the third cement job ran 125 sacks of cement, making a total load of 350 sacks of cement and 150 sacks of baroid.

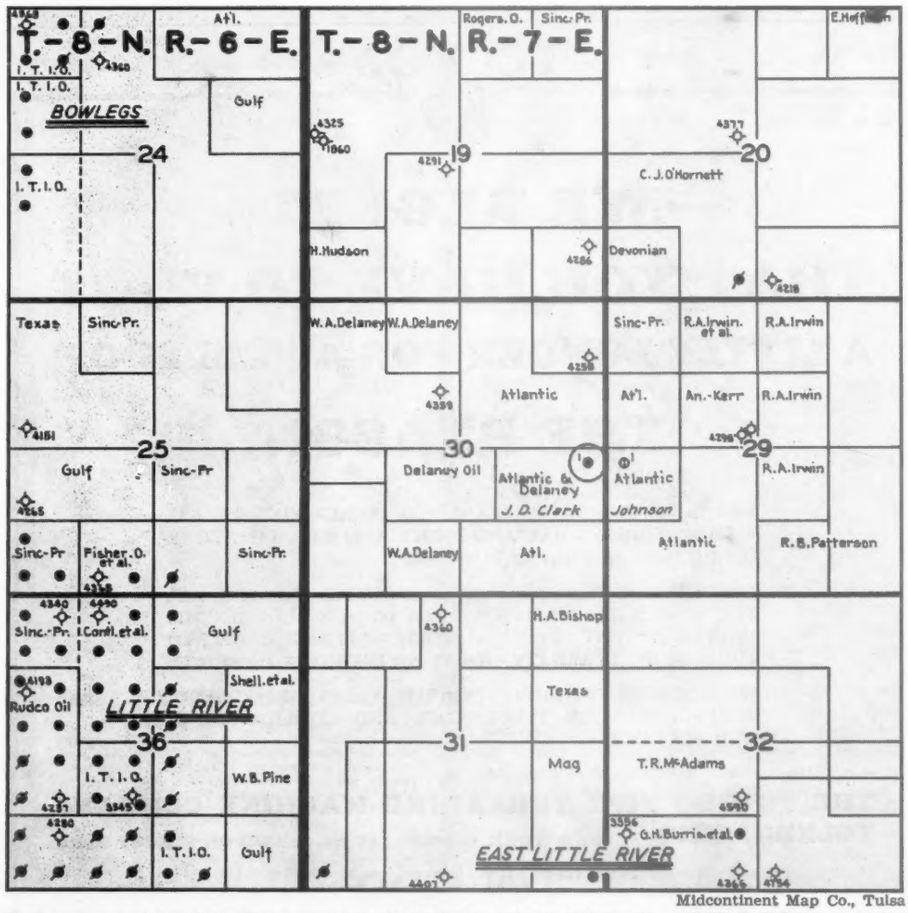
The discovery well of the field was drilled by Gled Oil and went wild for about a week, making oil and gas, after a somewhat similar blowout. The gas was believed coming from a big crevice at 3 Watkins.

Osage County Pool Opener

A small pool was also opened in Osage County at week's end when I. T. I. O., holders of large gas leases on the Osage lands, found oil production in a proposed Arbuckle lime gas test 800 ft. from the north line and 150 ft. from the east line SW 22-27-11. The well will go to Peters Petroleum Co. of Tulsa which holds the oil rights on the area. The well flowed 34 bbl. in 3 hours through casing. It is not yet completed.

Osage County.—Morris Mizzell and Berry Brothers Drilling Co. at week's end had apparently brought in a second big well from the first break in the Mississippi lime in Osage County at 7 Haney, SW cor. 28-23-9. The formation was topped at 2,285 ft. and the hole was drilled only a little further when the well headed up and made an estimated 125 bbl. in 4 hours. It was reported to have sprayed 70 ft. in the air. Half an hour later it headed up again with approximately the same amount of oil. The flow was through open hole with water intrusion from the Bartlesville and at last report was flowing steadily in a 2-in. stream into tanks and pits.

The location was made as an offset to a single-well structure which has been producing since 1933, but production was from a new horizon.



Midcontinent Map Co., Tulsa

North and east of the Little River area of Seminole County Atlantic Refining Co. and W. A. Delaney opened a new pool in 1 Clark, NE NE SE 30-8-7, and immediately after announced location for an offset to the discovery, Atlantic 1 Johnson, NW SW 29-8-7. The pool opener, circled above, was completed for 364 bbl.

OKLAHOMA COMPLETIONS

Caddo County

Cement field: Magnolia 10 Surbeck, NW SE SE 3-5-9w, potential 319 bbl., sand 3,324-40 ft., T.D., casing 3,315 ft.

Nichols 1 Boyce, SW SE NE 12-5-9w, flowed 12 bbl., sand 4,313-25 ft., T.D. 4,474 ft., casing 4,114 ft., perf. 2,970-80 ft., 2,670-2,700 ft., 2,320 ft. and 2,010-30 ft.

Creek County

Kellyville district: Kirchner 1 Carson, NE SE NW 23-17-9, dry, Wilcox 3,199-3,225 ft.

McAdams 1 Jackson, SW NW 31-17-10, old well drilled deeper from 2,715 ft. to 3,121 ft., first Wilcox 3,081 ft., dry.
Drumright field: Big Four 5 Vance, SE NE NE 24-19-7, dry, T.D. 3,472 ft., Wilcox 3,148-3,200 ft., Bergen 3,295 ft., Arbuckle 3,427-72 ft., water, P.B. 2,690 Bartlesville.

Jackson County

Altus pool: Burke 7 Minor, NW SE NE 15-1-20w, pumped 25 bbl. with four strings of tools in the hole, casing 1,337 ft., T.D. 1,524 ft.

Lincoln County

Prague pool: Mid-States 5 Provaznik-A, SW NW SW 33-12-6, pumped 175 bbl., Skinner 3,319-34 ft., T.D., casing 3,319 ft., shot 3,225-33 ft.
Mid-States 6 Provaznik, SE NW SW 33-12-6, pumped 80 bbl., Skinner 3,317 ft., casing 3,317 ft., T.D. 3,337 ft., P.B. 3,332 ft., shot 3,327-32 ft.
West Davenport pool: Vierson 1 Tipton, NW SE 5-14-5, swabbed and flowed 73 bbl., Prue 3,514-43 ft., T.D., casing 3,528 ft., shot 3,534-43 ft.

Logan County

Lovell pool: Big Chief 1 Strange, SW SE 27-18-4w, 7,000,000 cu. ft. gas, Elgin 3,345-62 ft., Checkerboard 5,075 ft., T.D. 5,127 ft., casing 4,318 ft., perf. 3,351-56 ft.
Wildcat: Champlin 1 Knecht, NE NW 21-18-4w, 5,500,000 cu. ft. gas, some water, casing 3,995 ft., Lovell 3,944-4,012 ft., T.D., pumped 15 bbl. oil and 30 bbl. water, P.B. 3,478 ft., perf. 3,425-28 ft.

Noble County

Lucien pool: Stanolind 1 Kolb, NW NE 33-20-2w, old well plugged back from 5,180 ft. to 4,119 ft., perf. 3,991-4,005 ft. and 3,990-4,010 ft., flowed 48 bbl. oil and 163 bbl. water.

Pontotoc County

Beebe pool: Senora 2 Burke, SE SW SE 25-5-4, pumped 70 bbl., some water, Viola 2,430 ft., casing 2,436 ft., T.D. 2,616 ft. show oil, show 2,550-2,616 ft.
Porter 1 Starritt, SE SW SE 28-5-5, capped and plugged.

Pottawatomie County

St. Louis district: Andrade 2 Decker, NE SW SW 16-7-4, flowed 65 bbl., Earlsboro 3,514 ft., casing 3,505 ft., T.D. 3,535 ft., shot 3,521-35 ft.
South Konawa pool: Culver 3 Waite, NW SW NE 9-5-5, flowed 1,200 bbl., T.D. 2,602 ft., casing 2,368 ft., Hunton 2,368 ft., Sylvan 2,598 ft.

Seminole County

North Little River pool: Delaney 1 Clark, NE SE 30-8-7, flowed 197 bbl. through tubing, Wilcox 4,272 ft., casing 4,282 ft.

Tillman County

West Frederick pool: I.T.I.O. 1 Wilkins, NE SE 2-3s-19w, dry, T.D. 5,315 ft., Arbuckle 5,260 ft., casing 3,271 ft.

Woods County

Wildcat: Gulf 1 Hess, NE NW 33-23n-13w, dry, T.D. 8,367 ft. in sand; Simpson 8,055 ft., no first Wilcox, second Wilcox 8,281 ft., cored dry hard sand 8,306-09 and 8,341-43 ft.

AVERAGE DAILY PRODUCTION

LEADING OKLAHOMA FIELDS

	Feb. 8	Feb. 1
Allen	4,850	4,775
Billings	6,375	6,275
Burbank	7,475	7,350
South Burbank	7,350	7,250
Balance Osage	17,250	17,100
Blackwell district	3,550	3,500
Bristow-Slick	6,450	6,350
Chandler	1,050	1,025
Crescent	2,275	2,225
East Cromwell	2,075	2,050
Cromwell	3,000	2,950
Cumberland	3,625	3,600
Cushing-Shamrock	9,000	8,875
Duncan	3,625	3,550
Edmond	3,800	3,750
Fish	2,925	2,875
Fitts	13,650	13,450
Jesse	1,975	1,950
Graham-Fox	2,250	2,225
Gray	925	900
Healdton	8,525	8,400
Hewitt	8,425	8,350
Keokuk	2,875	2,825
Konawa	1,000	975
Lucien	6,600	6,500
Moore	1,075	1,050
Northeastern counties	17,375	17,200
Oklahoma City	100,350	89,650
Olympic	1,800	1,775
Ramsey	3,550	3,500
Sasakwa	1,400	1,375
Sholem-Alechem	2,450	2,425
Seminole district:		
Bowlegs	6,450	6,350
Carr City	2,175	2,150
Dora	1,550	1,525
Earlsboro	4,075	4,000
East Earlsboro	1,775	1,750
South Earlsboro	550	525
Little River	6,650	6,550
East Little River	675	650
Mission	1,275	1,250
Seminole	6,550	6,450
East Seminole	1,100	1,075
Searight	1,875	1,850
Total Seminole	34,700	34,125
St. Louis-Pearson	21,650	20,400
Tatums-Tussy	4,825	4,775
Tonkawa-Garber-Thomas	3,575	3,550
Wewoka	1,600	1,575
Yale-Jennings	3,125	3,100
Total Oklahoma	418,600	400,500

OKLAHOMA DRILLING REPORT

Caddo County

Magnolia 1 McKoy ..... SW SW SE 16-5-11
Cored dry dolomite 6,332-39 ft., cored dolomite sand with some show bubbling gas 6,894-96 ft., cored hard tight sand, no show, 6,901-05 ft., drill-stem test 6,882-6,905 ft., no oil or gas, drilling ahead.
Ray Stephens 1 Lankford ..... SE SE NW 6-6-9w
Drilling 5,385 ft.

Carter County

Wirt Franklin 1 Ribbenhouse ..... SE NE SE 5-4s-2w
Cored dry sand and shale 2,483-2,503 ft., drilling 2,590 ft.

Creek County

Kirchmer et al 1 Carson ..... NE SE NW 23-17-9
T.D. 3,225 ft. in Wilcox, H.F.W.
Link 1 Kinch ..... NE SW NE 25-16-7
12-in. 1,036 ft., drilling blue shale 1,045 ft.
Ray Starr Oil & Gas 1-A Lumm ..... SE NW SE 8-14-8
Belle City 910 ft., Hogshooter 1,315 ft., Layton 1,400 ft., some show oil 1,450-1,520 ft., Oswego 2,413 ft., Prue 2,418 ft. stain, pink lime 2,780 ft., Bartlesville 2,844 ft., stain, T.D. 2,847 ft., run electric log.

Grady County

Tom Palmer 1-A Ramsey ..... SE SE NE 31-5-8w
Drilling 6,150 ft.

Hughes County

Mid-Continental et al 1 J. Davis ..... SE SE NW 15-6-8
Calvin 640-910 ft., Senora lime 1,150 ft., Senora sand 1,170 ft., sand 2,110-60 ft., brown lime 2,420 ft., Booch 2,588 ft., cored sand and shale, no show, 2,590-98 ft., drilling 2,670 ft.

Jefferson County

Johnson Drilling 1 Bound ..... NW NW NW 29-1s-8w
1,170 ft. N and 150 ft. E SW cor. 13-6s-6w
T.D. 1,862 ft., dumped 32 sacks cement in bottom.

Kay County

Union 1 Long ..... NW NW NW 29-28-1
Corrected top Wilcox 3,372 ft., T.D. 3,376 ft., swabbed 70 bbl. oil in 21 hr., testing.
Continental 1 Cronan ..... NW NE SW 23-28-3
7-in. 3,126 ft., standard tools.
Earl Williams 1-A Trueblood ..... SW NE SE SE 25-25-1w
T.D. 2,424 ft., cemented off tools on bottom and drilled out to run pipe.
Marland et al 1 Kreger ..... SE SE NE 4-25-2w
Sand 3,500 ft., drilling 3,603 ft.

Kiowa County

Artie Baker 1 Coakley ..... NW NE SE 30-7-17w
S.D. 1,283 ft.

Lincoln County

Mid-Continent et al 1 School Land NW NE NW 36-12-3
Woodford 5,250 ft., drilling 5,342 ft.

Logan County

Hamilton & Fain 1 Donoghue ..... NW SE 7-17-1w
Hogshooter 4,100 ft., Layton 4,130 ft., Checkerboard 4,170 ft., lower Checkerboard 4,380 ft., drilling.

Love County

Colvin & Hicks 2 Westheimer & Daube ..... W½ SE SW 27-6s-2e
S.D. 3,018 ft.

Muskogee County

H. P. Curtiss 1 Burford ..... NE NE NE 21-14-19
Sand 470 ft., drilling 480 ft., some show gas.

Noble County

Elson & Hudson et al 1-A Conway NE NE NE 1-23-2w

(Continued on Page 90)

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Mississippi Lime Produces in North Archer Co. Wildcat

By R. MARNE SANFORD

WICHITA FALLS, Tex., Feb. 10.—In northern Archer County and 3 miles northeast of the Mankins Deep field a wildcat is testing and indicating a new Mississippian lime discovery, while in the extreme northwestern part of the county a wildcat is testing for commercial production from the Caddo lime.

The prospective Mississippian strike is King Oil Co. 1 W. H. Taylor, Block 13, A.T.N.C.L. Survey. Saturation has been drilled from 4,925-49 ft. and the section has been given a 500-gal. acid treatment. At last reports the hole had unloaded the oil load and swabbing was under way. Prior to acid the test had swabbed 2½ bbl. of oil per hour through casing. Production is attempted through casing perforations from 4,926-36 ft., plugged back to 4,968 ft. from a total depth of approximately 4,990 ft. The Mississippian lime was topped at 5,315 ft. and the Ellenburger was found at 4,963 ft.

In northeastern Archer County and 2 miles southeast of the Vogtsberger field, Walter Gant and Barney Feagin are testing 1 Hunter, Section 7, German Emigration Lands Survey. The test has indicated commercial production from the deep Caddo lime from 5,155 to 5,280 ft. ft. It has been plugged back from a total depth of 5,391 ft., where shows of oil were tested in the Ellenburger lime from 5,370 ft. to total depth. Water encroachment ruined commercial completion in the deep pay. The test topped the Caddo lime at 5,133 ft., the Mississippian lime at 5,315 ft., and the Ellenburger lime at 5,370 ft. The 7-in. casing is set at 5,370 ft.

SUMMARY OF COMPLETIONS

North Texas

	No.	Bbl.	Footage
Oil wells: Hull-Silk field	2	1,920	8,784
Voth field	2	368	2,882
Bryson field	3	1,347	9,348
Young field	7	1,421	9,351
Other fields	11	7,905	25,774
Wildcats	2	58	5,169
Dry holes: Fields	10	.....	18,730
Wildcats	6	.....	12,208
Total	43	.....	92,246

West Central Texas

Oil wells: Fields	3	42	4,034
Gas wells: Fields	3	*8.19	4,916
Dry holes: Fields	1	.....	419
Wildcats	6	.....	8,515
Total	13	.....	17,884

*Million cu. ft.

Wildcats Staked

Three new relatively deep wildcat tests were staked in as many counties the past week, all of which are expected to be closely watched. In Archer County Magnolia 1 W. O. Hayter is 467 ft. from the south and west lines of Section 2415, T.E.&L. Survey. Contract depth is 3,800 ft., and it is located about 3 miles southeast of the town of Megargel.

In Jack County a new wildcat test to 3,500 ft. has been staked in the Antelope district of the northern part of the county. It is M. M. Garrett and associates, Dallas, 1 E. J. Crawford, on a 2,500-acre block near the center of the William McDonald Survey, Abstract 470. The area was core-drilled several years ago by Amerada Petroleum Corp. The location is 4 miles east of the town of Antelope.

In Wilbarger County a new wildcat, S. S. Kouri 1 Sam Kelly, is 660 ft. from the south and west lines of Section 54, Block 13, H.&T.C. Survey, 3 miles north of the town of Harrold. The Big Six Oil Co. strike on the Morris land 3 miles west of Harrold several weeks ago has stimulated a spirited leasing play for that part of the county, and additional wildcat locations are expected to be made in the near future.

In Jack County, testing still continues at Continental Oil Co.'s indicated Mississippian and Ellenburger lime discovery well, 1 Robertson. The well was officially completed about 1½ months ago in the deep pays, but was deepened. Prospects were not improved by deepening to 5,577 ft., and it was plugged back for testing in the Mississippian-Ellenburger contact zone. Plugged-back depth is now 5,397 ft., where swabbing is under way. The test is located in the Swan Survey, about 6 miles southeast of the Bryson field.

NORTH TEXAS COMPLETIONS

Archer County

K.M.A. field: Staley Oil 19 Mangold, 36 bbl. in 1 hr., ¾-in. choke, natural, 3,744-56 ft. and 3,788-3,801 ft.
Hull-Silk field: Cox & Hamon 1 Anderson-Patti, abandoned location.
Cox & Hamon 7 Little "Big," 39 bbl. in 1 hr., ¾-in. choke, natural, 4,354-60 ft.
Petroleum Producers 5 Anderson C, 41 bbl. in 1 hr., ¾-in. choke, 150-qt. shot, 4,392-4,424 ft.
Archer field: M. L. Drilling Co. 6 Prideaux, dry at 734 ft.
M. L. Drilling Co. 7 Prideaux, 6 bbl. daily, pumping, 647-662 ft.
Wildcats: Sam Kruger 1 Turbeville, Sec. 170, Robert Carson Sur., dry at 1,509 ft.
Gibson & O'Donohoe 1 Jentsch, H. Jentsch Sur., Abst. 995, dry at 4,806 ft.

Baylor County

Baylor field: Paul Scott 1 Fayette County School Lands, 80 bbl. daily, 2,500 gal. acid, 3,026-31 ft.

Clay County

Clay field: Susses Oil 1 Hamilton, dry at 1,113 ft.
George Golden 2 Joint Stock Bk., 3 bbl. daily, pumping, 334-348 ft.
Kimmell, Lee & Campbell 17 Firestone, dry at 384 ft.
W. H. Gant 1 Stine, Sec. 25, Blk. 4, H.&T.C. Sur., top Caddo 5,574 ft., dry at 5,807 ft.
Antelope field: Shell 8 Henderson, 108 bbl. in 8 hr., open tubing, 3,183-94 ft.

Cooke County

Cooke field: Kewanee Oil 14 Timmis, 10 bbl. daily, pumping, 40-qt. shot from 1,320-36 ft. and 40-qt. shot from 1,489-1,515 ft.
Bridwell Oil 5 Trew B, dry at 1,806 ft.
Voth field: Kingery Bros. 1 Boyer, 12 bbl. in 4 hr., 1,627-40 ft.
Whitfield, Pearson & Grimes 6 Sicking, 47 bbl. in 4 hr., pumping, 1,240-42 ft.
T.C.U. field: Russell & Harwell 3 Lynn, 10 bbl. daily, pumping, 1,122-34 ft.

Jack County

Wildcat: Wrightsman Oil 1 Yates & Brant, John Holderman Sur., Abst. 268, dry at 3,550 ft.
Bryson field: Three Bee Investment 1 Armstrong, 286 bbl. daily, 11/32-in. choke, 3,031-44 ft.
Three Bee Investment 1 Heiney, 406 bbl. in 13 hr., 27/64-in. choke, 3,107-20 ft.
Dallas Royalty Co. and Napoleonic Oil 1 Winn, 271 bbl. daily, pumping, 3,168-84 ft.

Montague County

Rogers & Rogers field: Stanolind 1 Dodson B, 57 bbl. in 3 hr., ½-in. choke, top Caddo 5,038 ft., conglomerate pay zone 5,107-13 ft.
Bonita field: Sinclair Prairie 2 Gilbert, show oil in conglomerate 5,442-57 ft. and 5,504-12 ft., dry at 5,582 ft.
Sinclair Prairie 6 Howard, 764 bbl. in 3 hr., open tubing, conglomerate pay zone 5,237-57 ft.

Wichita County

Wichita field: Underwood Oil 13 Rogers, 10 bbl. daily, pumping, 1,208-14 ft.
K.M.A. field: Mid-Union Drilling Co. 4-A Fassett-Tuttle, dry at 551 ft.
Seibolt & Harvey 3 Munger, abandoned location.
Wildcat: Golding & Cochran 1 Preston B, Sec. 26, Blk. 7, H.&T.C. Sur., 10 bbl. daily, pumping, 300-qt. shot from 3,922-46 ft., 1,500 gal. acid from 3,880-3,915 ft., and 3,000 gal. acid from 3,922-46 ft., T.D. 4,083 ft., P.B. to 3,990 ft.

Wilbarger County

Wilbarger field: Paradise Oil 10-B Waggoner, 30 bbl daily, pumping, 503-505 ft.

Young County

Young field: Cato Bros. 4 Hamilton, 9 bbl. daily, pumping, 871-889 ft.
Kimmell and Lee & Co. 2 Campbell A, 79 bbl. in 8 hr., pumping, 951-965 ft.
John P. Evans 1 Rogers, dry at 930 ft.
Hazel Sparks 5 Clark, 96 bbl. daily, pumping, 867-874 ft.
P. B. Worthington 1 Clark, 118 bbl. daily, pumping, 859-874 ft.
P. B. Worthington 2 Clark, 70 bbl. daily, pumping, 877-885 ft.
J. T. Harrell 3 Rogers, 155 bbl. daily, pumping, 870-871 ft.
L. T. Burns 4 Bloodworth, dry at 929 ft.
L. T. Burns 6 Bloodworth, dry at 894 ft.
Carrey & Carrey 1 Vaughn, 92 bbl. in 3 hr., ¼-in. choke, 3,960-93 ft.
Wildcats: S. D. Glover 1 Luton, J. L. Elmore Sur., Abst. 1421, dry at 740 ft.
Petroleum Producers 1 Stewart, Sec. 229, T.E.&L. Sur., dry at 1,010 ft.
B. C. Gilmer 6 Stewart, Sec. 1 Young County School Lands, Abst. 1284, dry at 593 ft.
Jack Latson 1 Bailey, 21 bbl. in 10 hr., pumping 1,076-86 ft.

NORTH TEXAS WILDCAT REPORT

Archer County

Walter Gant 1 Hunter, SE NW Sec. 7, Blk. 1, H.&T.C. Sur., top Ellenburger 5,370 ft., set 7-in. at 5,370 ft., T.D. 5,391 ft., filled 30 ft. in 12 hr., 15-qt. shot and acidized with 3,000 gal. 5,381-91 ft., lost swab in hole, fishing.
King Oil 1 Taylor, Lot 1, Sec. 13, A.T.N.C.L. Sur., show oil 4,995-5,020 ft., 5½-in. set 4,970 ft., top Ellenburger 4,963 ft., perf. casing 4,926-36 ft., treated 2,000 gal., no results, prepare to treat again.
H. F. Smiley 1 Larr, SW NW Sec. 136, H.S. of C.R. Sur., 1,400-ft. test, drilling 965 ft.
Adams Oil & Gas 1 Powell, SE Lot 14, Sec. 1, S.P.R.R. Sur., Abst. 406, 5,200-ft. test, drilling 3,095 ft.
Deep Oil and Christie 1 G. Moer, SW SW Sec. 21, Clark & Plumb subd., Blk. 3, 4,600-ft. test, drilling 2,645 ft.
Shappell Oil 15 Lyles, NW NE Sec. 7, Hooper & Wade Sur., Abst. 234, 4,800-ft. test, drilling 2,175 ft.
W. B. Hamilton 1 C. E. Graham C, SE part of Gibenrath Sur., Abst. 136, 2,000-ft. test, S.D. 1,975 ft.
Jack Story, Jr., 1 L. F. Wilson, NE Lot 4, Sec. 86, A.T. N.C.L. Sur., 1,600-ft. test, drilling 1,340 ft.
Home Oil 1 Spain, NE Sec. 8, Meade Pasture subd. 55, 1,400-ft. test, location.
Consolidated Oil 1 Humphry, 467 ft. from S and W lines of E. S. Heath Sur., Abst. 176, 4,400-ft. test, first report.
Petroleum Producers 1 M. Lynch, 2,310 ft. from W and 330 ft. from S lines, Sec. 20, Palo Pinto C.S.L. Sur., 4,400-ft. test, first report.

Baylor County

L. T. Burns 1 Burns, Sec. 73, T.&N.O. Sur., 4,500-ft. test, drilling 3,934 ft.
British American Oil 1 Claude Owens, SE SE Sec. 102, T.&N.O. Sur., Abst. 1311, 2,600-ft. test, 9⅝-in. at 103 ft., drilling 2,225 ft.

Clay County

Carlos Wagner 1 L. C. Thaxton, Sec. 2, T.&N.O. Sur., 6,500-ft. test, drilling 3,440 ft.
Petroleum Producers 1 O. O. Ross, Sec. 8, J. Wyont Sur., Abst. 902, T.D. 5,584 ft., pumped 40 bbl. oil and 40 bbl. water in 24 hr. after 5,000 gal. acid, testing on pump.
Bridwell Oil 1 W. H. Myers, C. Thompson Sur., Abst. 444, 5,500-ft. test, 10-in. at 186 ft., drilling 950 ft.
Akin, Dimock & Costley 1 Patrick, NE SE Sec. 82, 1,200-ft. test, moving in material.
Gulf 1 C. W. Scaling, NW NW Sec. 31, T.&N.O. Sur., Abst. 685, 6,000-ft. test, drilling 360 ft.
L. T. Burns 1 Southerland, NE cor. of W 100 acres of Sec. 63, J. H. Belcher Sur., 5,500-ft. test, 10-in. at 100 ft., S.D.
Claude Riley 1 Reid, 950 ft. from W and 645 ft. from S lines, Sec. 141, Byers Brothers subd., 1,500-ft. test, first report.

Denton County

Amon G. Carter 1 W. P. and A. P. Allen, S. Westbrook Sur., T.D. 9,025 ft., prepare to make D.S. test, no oil show reported at total depth (tight well), 10,000 ft. contract depth.

Cooke County

R. P. Farris 1 Houston, 3,550 ft. from S and 3,600 ft. from E lines of Charles DeMorse Sur., Abst. 332, 1,800-ft. test.

Grayson County

Texas Co. 1 Hutchinson, Samuel Stewart Sur., S.D. 5,545 ft., tight well, prepare to abandon.

Hood County

Aztec Oil 1 Gallagher, SW SE Robert Alway Sur., 3,000-ft. test, drilling 2,200 ft.

Jack County

Continental 1 Robertson, M. J. Swan Sur., Abst. 1659, top Ordovician 5,380 ft., T.D. 5,577 ft., P.B. 5,397 ft., testing.
Continental 1 Johnson, N part of D. D. Burton Sur., Abst. 1671, 5,500-ft. test, drilling 2,673 ft.
Reed & Craft 1 Richards, 467 ft. from W and 1,200 ft. from N lines of C. Gates Sur., Abst. 237, 3,500-ft. test, first report.

Montague County

J. G. Hammond 1 Jester, 84-acre tract in E. Wingate Sur., Abst. 835, 2 mi. W of Mallard, top Caddo lime 6,282 ft., drilling 6,676 ft.
Sinclair Prairie 1 W. G. Hawkins, 631 ft. from N and 330 ft. from E lines of farm in Sec. 17, H.&T.C. Sur., 3 mi. SE of Ringgold, drilling 5,312 ft.
T. F. Hunter and Wilcox O. & G. 1 Barcus, NE Sec. 78, Kaufman C.S.L. Sur., Abst. 407, 3,600-ft. test, drilling 2,600 ft.
Redman Brothers 1 Hardy, 225 ft. from N and E lines of 41-acre tract in Fielding Secrest Sur., Abst. 665, 2,500-ft. test, first report.

Throckmorton County

Humble 1 Allie McKnight, 1,100 ft. from N and 660 ft. from E lines, Sec. 2, D.L.&C. Sur., Abst. 1264, 5,000-ft. test, moving in material.

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Humble 1 Durham, NW NW Sec. 1627, T.E.&L. Sur., top Caddo 4,182 ft., 5½-in. at 4,413 ft., T.D. 4,428 ft.

Tarrant County

Bruce Sullivan 1 W. C. Putnam, 200-acre tract in Milley Gilbert Sur., new contract depth 7,500 ft., drilling 7,195 ft.

Wichita County

Big Six Oil 1 Edmonson, 150 ft. from N and W lines, Sec. 13, Red River Lands subd., S.D. 1,725 ft.
Fred Browning 1 W. L. Warren, 996 ft. from N and 330 ft. from W lines, Sec. 32, W.V.F.L. Sur., T.D. 4,001 ft., P.B. 1,766 ft., putting on pump.
R. D. Doran 1 Ancell, SE Sec. 36, Blk. 5, H.&T.C. Sur., 7-in. 4,020 ft., T.D. 4,077 ft.
Underwood 1 E. D. Owens, SW SW Sec. 49, Specht & McCutchin subd., 1,250-ft. test, location.

Wilbarger County

Big Six Oil 1 Morris, Sec. 3, Blk. 14, H.&T.C. Sur., show oil 2,895-2,907 ft., 7-in. 2,895 ft., T.D. 2,905 ft., testing est. 60 bbl. oil per day, S.I., installing pumping unit.
Ray Brothers 1 Henry Streit, 72-acre tract in S. N. Gosnel Sur., Abst. 1231, 7-in. 1,913 ft., underreaming 7-in. at 2,057 ft.
W. B. Omohundro 1 W. T. Waggoner, 1,100 ft. from E and 150 ft. from S lines of Sec. 49, Blk. 4, H.&T.C. Sur., 6⅝-in. 1,229 ft., show oil 1,229-47 ft., tested oil and water, rigging up spudder.

Young County

Ben H. Rankin 1 Mary Logan, SW part Blk. 2, J. W. Doty Sur., 8 mi. NE Graham, 2 mi. W Nelson field, show oil and gas 4,057-60 ft., 5½-in. at 4,234 ft.
Dorian & Farrell 1 Grigsby, Sec. 416, T.E.&L. Sur., 7-in. 3,972 ft., show oil 3,979-89 ft., bailed 1½ gal. oil per hour, T.D. 4,991 ft., P.B. 3,989 ft., prepare to shoot from 3,974-88 ft.
Hayden 1 Casey, 700 ft. from S and E lines, Sec. 1396, T.E.&L. Sur., 900-ft. test, first report.
W. J. Milo 2 Stewart, 750 ft. from N and W lines of J. L. Steen Sur., Abst. 1824, 900-ft. test, first report.
C. D. Willis 1 Stewart D, 1,411 ft. from N and 1,057 ft. from W lines, David Dawson Sur., Abst. 76, 950-ft. test, first report.
E. L. Orr 1 Edwards, 1,170 ft. from N and 450 ft. from E lines, Sec. 1,481 ft., T.E.&L. Sur., 950-ft. test, first report.
M. R. Stipe 1 J. M. Bloodworth, NW S½ SE Sec. 194, T.E.&L. Sur., 1,250-ft. test, first report.
H. R. Loftin 1 Loftin, SW cor. 80-acre tract in Ann Wood Sur., Abst. 1274, 600-ft. test, first report.
Rhea Anderson 1 Mulinax, 1,716 ft. from N and 150 ft. from W lines, Sec. 168, T.E.&L. Sur., 1,000-ft. test, first report.
Frank Buttram 1 Holmes, 600 ft. from W and 1,960 ft. from S lines, J. M. McRodgers Sur., Abst. 1878, 4,000-ft. test, first report.

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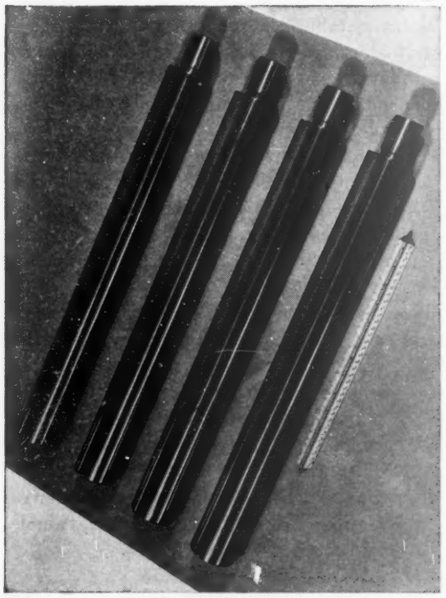

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WEST CENTRAL TEXAS

FORT WORTH, Tex., Feb. 10.—A Coleman County wildcat, 6 miles south of the Novice field which has indicated commercial production, is being rigged up for drilling plugs. It is A. P. Heinze 1 J. J. Kincaid, Section 41, B.B.B.&C. Survey. The 5-in. casing has been cemented on top of the Gardner sand section drilled with oil showings from 3,629-47 ft. No preliminary flows have been reported from the test, however, a small shot has been proven greatly beneficial to production from the Gardner sand in wells in the Novice pool.

Fisher County.—In Fisher County, the scene of renewed activity since the discovery of a Swastika sand field near McCaulley several weeks ago, a new 3,500-ft. wildcat test has been staked and is being rigged up for immediate drilling. It is Al Landers and H. J. Eisele 1 Mose Newman, located about 14 miles northeast of Sweetwater and in NW Section 8, Block 20, T.&P. Survey.

Palo Pinto County.—In Palo Pinto County prospects were seen at the close of the week for a small discovery well. Cole & Davis 1 Rogers, in the T.E.&L. Survey, Abstract 893, about 3 miles northeast of Graford, is preparing to attempt completion from a 10-ft. section of saturation drilled from 1,470-80 ft. The showing was passed up several weeks ago and the test was carried to a total depth of 2,180 ft. where additional shows were found. A considerable gas volume was found at 1,900 ft. and the operators now intend to attempt completion from both the 1,400-ft. oil section and the 1,900-ft. gas zone, using the gas for fuel in carrying on further exploration in the area.

Jones County

Activity is increasing in the Stith area of southern Jones County where Danciger Oil & Refining Co. opened a new field late in 1940. About 2½ miles northwest of the Danciger 1 Kelso discovery well, the same company is spudding an outpost test as 1 Mary Foster, Section 13, Block 17, T.&P. Survey. Meanwhile 1½ miles east of the 1 Kelso discovery well Harry Hines is drilling below 775 ft. at an outpost in the Wimberly lands, Section 87, same block and survey. It is contracted to 2,600 ft. and has been shut down for several days. Meanwhile in the Stith field itself Danciger 1 Gale, ¼-mile southeast of the 2,336-ft. Kelso discovery, is drilling below 2,575 ft. after missing the pay found in the discovery well. Defining the area on the northwest, the Danciger 2 Kelso, Section 82, has been shut down at 2,350 ft. after finding water in the prospective pay section. A small noncommercial oil showing was found at 2,235 ft.

WEST CENTRAL TEXAS COMPLETIONS

Brown County

Brownwood field: J. E. Whitesides 1 Johnson, top Marble Falls 1,406 ft., 500,000 cu. ft. gas, 3,000 gal. acid, 1,407-68 ft.

Callahan County

Hatchell field: F. J. Borman 3 Harris, abandoned location.

Coleman County

Santa Anna field: Coleman Oil & Gas 1 Lloyd, 5,690,000 cu. ft. gas, 2,500 gal. acid, 2,143-96 ft.

Eastland County

Wildcat: C. D. Lane 1 Mason, NW NW NW Sec. 13, D.&D.A. Sur., dry at 1,142 ft.

Hamilton County

Wildcat: Bob Waters 1 Oates, 3,350 ft. from southeast and 8,450 ft. from northeast lines of F. Hughes Sur., abandoned location.

McCulloch County

Wildcat: A. K. McCord 1 Eubanks, 1,600 ft. from south and 950 ft. from west lines of J. Monor Sur. 5, dry at 323 ft.

Menard County

Wildcat: Baldwin 1 Leggett, SW SW Sec. 1, B.S.&F. Sur., 2,000,000 cu. ft. gas, 1,250-52 ft.

Parker County

Wildcat: Brown & Gardner and Higginbotham 1 Gilbert, T.&P. Sur., Abst. 1958, dead oil 4,405-15 ft., dry at 4,832 ft.

Runnels County

Wildcat: A. J. Johnson 1 Fletcher, E. W. Bull Sur. 333, dry at 515 ft.

Shackelford County

Albany field: J. Burns Brown 1 Hill, abandoned location.
Moran field: W. A. Cox 2 Pool, dry at 419 ft.
J. M. Russell 1 Berton, abandoned location.
Davis field: Rhodes & Higher 19 Davis, 11 bbl., pumping, 20-qt. shot, 1,197-1,213 ft.
Daniel-Fardue 1-B Davis, 20 bbl., pumping, 20-qt. shot, 1,594-1,607 ft.
Newell field: Fortex Oil 3 Newell, 11 bbl., pumping, 20-qt. shot, 1,204-14 ft.
Wildcat: R. T. Nail 1 Cook, NW SE SW Sec. 53, E.T. Sur., dry at 1,284 ft.

WEST CENTRAL TEXAS WILDCAT REPORT

Brown County

A. J. Stokes 1 B. S. Bayston, 210 ft. from SE line and 2,962 ft. from SW line of Prosper Mangel Sur. 604, top Marble Falls 1,559 ft., drilling 1,573 ft.
R. Richmond 1 Petros, SW SW Sec. 7, H.T.&B. Sur., 1,200-ft. test, drilling 700 ft.
Johnson-Richburg-Mannon 2 Charter, NW NW Sec. 20, B.B.B.&C. Sur., S.D. 390 ft.

Coleman County

A. P. Heinze 1 J. Kincaid, 467 ft. from N and W lines of E½ SW Sec. 41, B.B.B.&C. Sur., 3,800-ft. test, show gas 3,387 ft., standardizing 1,647 ft.
R. H. Murray 1 Morris, 467 ft. S and W of NE 160 acres of J. Greenwood Sur. 304, T.D. 1,300 ft. (corrected), last report.

Eastland County

W. M. Morris 1 Carrie Bryant, 1,520 ft. from N and 200 ft. from W lines of SE Sec. 20, Blk. 1, H.&T.C. Sur., 6⅝-in. 825 ft., show gas 912-25 ft., T.D. 925 ft.
Hickok Oil 1 Luse & Gray, NE Sec. 486, S.P. Sur., Ordovician test, ¾ mi. SE of new McElreath field, 4,250-ft. test, drilling 2,213 ft.
A. A. Hutton 1 W. Penn, NW SE Sec. 11, Blk. 2, B.B. B.&C. Sur., 600-ft. test, location.
Douglas Tomlinson, Jr., et al 1 Bennett, NE NE NE Sec. 6, Blk. 2, H.&T.C. Sur., 900-ft. test, drilling 245 ft.

(Continued on Page 82)

Kansas Fields

(Continued from Page 67)

Indian Territory Illuminating Oil Co. continued with 1 Schaible, 4 miles southeast of Shubert in C SW SW 29-3n-16e, Richardson County.

Nemaha County.—In Nemaha County, Nebraska, 1 mile west of Auburn, Garetson & Knisely were drilling for the Bow & Arrow Co., having taken over the work at 1 Schreifer in CNL NE SW 20-5n-14e, which was started with cable tools. A rotary now is being used.

Jackson & Rust continued drilling near Watson in Atchison County, Missouri. Dan McLaughlin 1 Thorp in Leavenworth County, Kansas, failed to produce oil in the Wilcox sand, although a showing was supposed to have been found there.

Most work was shut down because of bad weather and muddy roads.

NEBRASKA COMPLETIONS

Falls City pool: Campbell et al 2 Schock-B, SE SW 20-1n-16e, pumped 450 bbl., casing and top pay 2,278 ft., T.D. 2,282 ft.

FOREST CITY BASIN DRILLING REPORT

NEBRASKA

Richardson County

Ohio 1 Bahr ..... SE SW SE 7-1n-16e
Moving in.
Ohio 7 Sandrock ..... NW NE SW 20-1n-16e
Hunton 2,232 ft., drilling plug.
J. E. Palensky 1 Kalous ..... SW SW 5-2n-13e
Set pipe in Hunton, tight hole.
McNulty & Bass 1 Cander ..... C SW SW 15-2n-13e
Viola 2,605 ft., Hunton 1,910 ft., water in lower Hunton, upper Hunton dry.
I. T. I. O. 1 Schaible ..... C SW SW 29-3n-16e
Drilling at 1,404 ft.
W. H. Martgan 1 Smith ..... C NW NW 31-3n-16e
Hunton 2,513 ft., T.D. 2,530 ft., set pipe, to test.

KANSAS

Brown County

Gernon & McAlpine 1 Tyler ..... NE SW SW 4-3n-15e
S.D. at 1,000 ft. for 8-in., elev. 1,121 ft.

Jefferson County

C. A. Caufield 1 Ragan ..... SW SE 19-10s-20e
S.D. 1,182 ft.

Leavenworth County

Dan McLaughlin 1 Thorp ..... C NE NE 27-10s-20e
Wilcox 2,088 ft., Arbuckle 2,163 ft., fishing job at 2,209 ft., test of Wilcox fails.

Nemaha County

Ladd & Vincent 1 Achten ..... CSL SE NW 12-4s-15e
S.D. 2,007 ft.

MISSOURI

Atchison County

Jackson & Rust 1 Hays ..... NE NE 22-66n-42w
Drilling at 1,485 ft.
J. H. Haynes 1 Beene, NW E½ SW Sec. 13, Blk. 3, H.&T.C. Sur., 2,750-ft. test, first report.

Two Low Wells Probably Limit Hawkins on South Side

By R. MARNE SANFORD

DALLAS, Tex., Feb. 10.—Two outpost tests, one south and one southeast of the Hawkins townsite, have both indicated failures as geological markers have been correlated from 550 to 600 ft. lower than townsite wells. Northeast of the townsite and just east of the once wild gas well, a test is drilling ahead and checking some 77 ft. lower than townsite wells, yet about 141 ft. higher than the original Manziel 1 Morrison discovery north of the town of Hawkins.

Probably the most important of the two south and southeast outposts is the Walter Goldston 1 Osborne, on the Sabine River and about a mile south of Hawkins. The outpost, located in the Cobb Survey, topped the Pecan Gap at 3,260 ft., and with an elevation of 301 ft.

SUMMARY OF COMPLETIONS

East Texas Field

(Hourly production)

	No.	Bbl.	Footage
Oil wells: Gregg County	7	265	25,116
Rusk County	2	53	7,308
Total	9		32,424

East Central Texas

Oil wells: Long Lake field	1	222	5,334

checked about 405 ft. lower than townsite wells and some 187 ft. lower even than the Manziel 1 Morrison. The Austin chalk was topped at 4,560 ft., 584 ft. lower than townsite wells and 179 ft. lower than 1 Morrison. The test was last reported fishing for lost drill pipe at a total depth of 4,675 ft., with no Woodbine sand yet reported.

The other defining outpost is the Flanagan & Nicholson 1 Hale, Brock Survey, in the Red Springs area of northern Smith County and about 6 miles southeast of the Hawkins townsite. It reported a top of 3,219 ft. on the Pecan Gap, which was the lowest of any tests in the area since the play started. The Austin chalk was found at 4,613 ft., which placed it some 600 ft. lower than townsite wells. It is drilling ahead below 4,800 ft. with no Woodbine sand yet reported.

About ⅛ mile southeast of Manziel 1 Bell, the wild gas well which was later plugged, the A. A. Folsom 1 Prince, E. Wideman Survey, is drilling below 4,100 ft. and looking for top of the Austin chalk. The test encountered the Pecan Gap at 3,021 ft., which checked 77 ft. lower than townsite wells, yet 141 ft. higher than 1 Morrison some 2 miles to the north. Should this structural condition be borne out on the tops of both the Austin chalk and the Woodbine sand, the well would be given a better-than-average chance of finding oil production.

Meanwhile another Hawkins townsite well has been completed. It is Hollandsworth & Johnson 1 Lynch, west offset to the Hollandsworth 1 Robbin, second producer in the town. No. 1 Lynch made 25 bbl. of oil hourly from the Woodbine sand, together with an approximate 20,000,000 cu. ft. of gas daily from the sub-Clarksville sand. The oil production is from a lower-sand break in the Woodbine section than its east offset, the pay zone being from 4,909-15 ft. and the oil being only 20 gravity as against the 27-gravity 1 Robbin.

A new west outpost to the Hawkins townsite has been staked by Edwin Lacy of Longview as his No. 1 W. Christian, 467 ft. from the north and east lines of a 40-acre lease in the Edward Wideman Survey. The location is about 1,500 ft. southwest of the A. A. Folsom 1 Prince, same survey, which is drilling ahead.

East Texas Wildcats

Two new wildcats were staked in as many counties of the eastern Texas district the past week to keep exploration active outside of the Hawkins area. In northwestern Smith County and 3 miles southwest of Garden Valley R. L. Moore et al have made a location on the J. B. Browning tract, 467 ft. from the north and 648 ft. from the west lines of a 177-acre tract in the Gillington Chisum Survey. It will seek production from the Woodbine sand.

In Leon County and a mile southeast of Buffalo a new wildcat has been staked by H. A. Lindsay as 1 J. L. White, 467 ft. from the southwest and northwest lines of a 160-acre tract in the McKinney and Williams Survey. It is northwest of the Buffalo gas field on the north flank of which one small oil well has been drilled.

EAST CENTRAL TEXAS COMPLETIONS

Anderson County

Long Lake field: Alex McCutchin 1 J. A. Reagan, 222 bbl. daily, 10/64-in. choke, 5,320-34 ft.

EAST TEXAS FIELD COMPLETIONS

Gregg County

Longview area: Bailey & Trimble 16 Jones, 63 bbl. an hr., 3,585-3,650 ft.

J. H. Massey 9 J. W. Orr, 21 bbl. in 30 min., 3,535-87 ft.

Kilgore area: Delta Drilling Co. 5 Alexander, 250 bbl. daily, pumping, 3,515-49 ft.

J. B. Wrather 3 (was J. K. Kline 1) Jerry, 200 bbl. in 4 hr., flowing and swabbing 3,545-90 ft.

Nioco Oil 15 J. A. Knowles, 20 bbl. an hr., 3,542-80 ft.

Ed Pace 7, 9, 12, 13, 15 Trip Elder, abandoned locations.

Potter Bros. 4-A Griffin, 20 bbl. in 30 min., 3,546-80 ft.

Potter Bros. 8-A Griffin, 20 bbl. in 30 min., 3,547-80 ft.

Rusk County

Joiner area: P. G. Lake 11 Dickerson, 31 bbl. in 6 hr., pumping, 3,576-82 ft.

Shell 26-A Brooks, 48 bbl. an hr., 3,640-3,726 ft.

EASTERN TEXAS WILDCAT REPORT

Anderson County

R. H. & W. Oil 1 Saunders, 17-acre tract in Joseph Ferguson Sur., in Frankston townsite, top Austin chalk 4,605-4,834 ft., sub-Clarksville 4,878-4,910 ft., drilling 5,250 ft.

Texas 1 Greenwood, M. Salisar Sur., 4 mi. NW Palestine, T.D. 2,100 ft., hole 6 ft. off vertical, P.B. 1,450 ft., setting whipstock.

Cherokee County

R. Lytle 1 W. D. Thomas, B. C. Lewis Sur., 108-acre tract, 1 mi. NE Cuney, pits.

Freestone County

C. W. Killough and E. B. Germany 1 Woolens, J. Ryan Sur., 9 mi. N Fairfield, twisted off drill pipe, fishing for 21 thribles of pipe, T.D. 4,073 ft.

Kaufman County

T. G. Shaw, trustee, 1 Agnes Wynne, B. S. Newman Sur., 8 mi. E of Kaufman, lower Trinity test, S.D. 6,454 ft.

Leon County

H. A. Lindsay 1 J. L. White, McKinney & Williams Sur., 1 mi. SE of Buffalo, first report.

McLennan County

E. P. Campbell 1 Stewart, S. Burton Sur., 5 mi. N of Waco, S.D. 765 ft.

Frank Place 1 Hackney, I. Robbins Sur., 4 mi. SE McGregor, drilling 710 ft.

Limestone County

Farrell Drlg. and Gulf Oil 1 F. Bevill, J. H. Murray Sur., 1 mi. SW of Horn, Travis Peak 4,892 ft., T.D. 5,520 ft., P.B. 4,724 ft., drilled out to 4,865 ft., tested water, S.D.O.

Navarro County

Hargrave Oil 1 C. S. West, M. Boren Sur., 1½ mi. S Richland, T.D. 3,257 ft., salt water.

Rusk County

Delta Drilling Co. 1 Kangerga, 113-acre tract in R. Lane Sur., 3 mi. N of Henderson, 8,200-ft. test, spudding.

Skelly Oil 1 Markey, Nolan Sur., 4 mi. SW Mount Enterprise, 8,000-ft. test, spudding.

Smith County

O. L. Ross 1 Dr. Willingham, J. Herrin Sur., 2 mi. E Whitehouse, 10-in. at 110 ft., prepare to drill ahead.

Sells Pet. 1 C. J. McKay, National Wren Sur., 3 mi. NW Winona, Woodbine sand test, rigging up.

Flanagan & Nicholson 1 P. Hale, Isaac Brock Sur., in Red Springs area, Woodbine test, top Austin 4,600 ft., drilling 4,635 ft., checked 400 ft. low.

Trinity County

R. W. Burnett 1 Southern Pine Lumber Co., G. Ricardo Sur., 2 mi. N Apple Springs, S.D.O. 1,858 ft.

Upshur County

Sun Oil 1 W. C. Henderson, NW cor. of 27-acre tract in 100-acre tract in Robinson Asher Sur., just outside town of Ore City, 7,000-ft. test, 13-in. at 64 ft., 9⅝-in. at 976 ft., drilling 1,216 ft.

Wood County

Delta Drlg. Co. and Sells Pet. 1 Beckham, G. W. Cowan Sur., 4½ mi. NE of Mineola, running casing 6,520 ft.

Travis & Stoddard 1 Bryan, C. M. Patton Sur., 1½ mi. W Hawkins, 467 ft. from N and E lines of survey, location.

W. L. Goldston 1 Osborne, H. S. Cobb Sur., 1 mi. SE Hawkins, 330 ft. from N and E lines of survey, top Pecan Gap 3,275 ft., top Austin 4,575 ft., fishing 4,674 ft., checked 584 ft. low.

Bill Urbanic 1 J. A. Snider, NE cor. 73-acre tract in Castleberry Sur., 1½ mi. NE of Hawkins, drilling 810 ft.

A. A. Folsom 1 E. P. Prince, E. Wideman Sur., 1½ mi. NW Hawkins, top Pecan Gap 3,021 ft., drilling 4,020 ft.

E. B. Germany 1 Menchew, George Brewer Sur., Hawkins townsite, drilling 850 ft.

Humble 1 Bryant, 467 ft. from N and W lines of W. Parker Sur., in Hawkins area, rigging up machine.

Humble 1 Williams, 1,400 ft. from S and 467 ft. from W lines B. H. Hampton Sur., in Hawkins area, rigging up machine.

Humble 1 Clift, 106-acre tract in James Pollack Sur., in Hawkins area, derrick.

Humble 1 Moore, SE SE James Pollack Sur., in Hawkins area, derrick.

Jackson & McGlothlin 1 Moore, 10-acre tract in Joseph Knight Sur., in Crow townsite, Woodbine sand test, pits.

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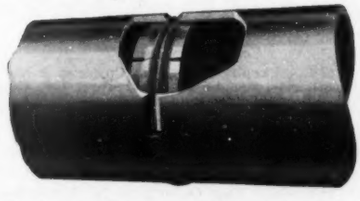

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Deep Geauga County Test is Dry in Trenton Lime

By STAFF CORRESPONDENT

NEWARK, Ohio, Feb. 10.—Ohio operators put in a disappointing week, completing 12 dry holes, 9 small gas wells, and 7 oil wells. The sub-Trenton test in Geauga County was abandoned at 6,101 ft. after getting a hole full of water. Perry County yielded a 125-bbl. oil well to brighten the picture in southeastern Ohio.

The wildcat test in Springfield Township, Erie County, northwestern Pennsylvania, Ohio Oil Co. 1 Jay Childs, in Section 4, made 4 bailers of water per hour with no gas, from the Newburg at 2,420-26 ft. It is drilling to the Clinton.

In Belmont County, Ohio, the important deep test of the Natural Gas Co. of West Virginia on the E. A. Mobley farm, Section 19, Smith Township, was drilled through the Clinton sand and was dry. The corrected top of the Clinton was 7,742 ft. followed by 35 ft. of white sand void of any showing. The hole was bottomed at 7865 ft. with no water intruding.

SUMMARY OF COMPLETIONS

Ohio

	No.	Prod.	Footage
Oil	7	142	8,192
Gas	9	*2.8	21,716
Dry	12	.....	21,588
Total	28	.....	51,496

*Million cu. ft.

Indiana

	No.	Bbl.	Footage
Oil wells	2	270	5,499
Dry holes	3	.....	6,233
Total	5	.....	11,732

Western Kentucky

	No.	Bbl.	Footage
Oil wells	1	55	331
Gas well	1	*0.1	427
Dry holes	4	.....	3,441
Total	6	.....	4,199

*Million cu. ft.

Ashland County

Mohican Township: Obrecht et al 1 L. C. Galloway, Sec. 32, 75,000 cu. ft. gas, Berea, T.D. 712 ft.
Perry Township: Sloan & Zook 1 John Urban, Sec. 17, dry, Berea, T.D. 767 ft.

Athens County

Canaan Township: Speary Co. 8 R. A. Smith, Sec. 12, dry, stray, T.D. 632 ft.
Rome Township: Charleton 1 John Day, Fraction 36, dry, Peeker, T.D. 250 ft.
Cook et al 1 F. Laughlin, Sec. 16, dry, Salt sand, T.D. 760 ft.
Ernest Gibson 3 W. H. and Olive Morrison, Sec. 36, 5 bbl., second Cow Run sand, T.D. 440 ft.
F. H. Gifford 5 John Parmiter, Sec. 30, 2 bbl., second Cow Run sand, T.D. 447 ft.

Coshocton County

Pike Township: Purphy Petroleum Co, et al 2 Newton Ashcraft, NW Sec. 14, 10 bbl. before shot, Clinton sand, T.D. 3,130 ft.

Cuyahoga County

City of Cleveland: Cushing Brothers Otis Steel Co., dry, Clinton, T.D. 2,745 ft.

Geauga County

Chardon Township: East Ohio 1 G. W. Crile, Sec. 1, dry, Clinton 3,460-3,505 ft. and 3,522-31 ft., Trenton 5,260-5,990 ft., Blue Lick water 6,000 ft., hole full, T.D. 6,101 ft.

Knox County

Butler Township: Max Johnson 1 J. Hunter, Lot 9, first quarter, 130,000 cu. ft. gas, shot, Clinton, T.D. 2,850 ft.
Danville Corporation: Max Johnson 1 Luther Hager, 300,000 cu. ft. gas, shot, blew down to 6,000 cu. ft., plugged, Clinton, T.D. 2,773 ft.

Licking County

City of Newark: William Mauller et al 1 O. J. Foster, west part of corporation, 450,000 cu. ft. gas, shot, Clinton, T.D. 2,307 ft.
Ohio Fuel 2 A. B. Crawford, north part, 960,000 cu. ft. gas, Clinton, T.D. 2,390 ft.

Lorain County

Penfield Township: William Dempsey 2 Elmer Bunt, Lot 43, dry, Berea, T.D. 375 ft.

Medina County

Spencer Township: Ohio Fuel 1 Asa Firestone, Sec. 15, dry, Clinton missing, T.D. 2,550 ft.
York Township: W. E. Sawyer 3 P. J. Wilbur, Lot 12, dry, Berea, T.D. 345 ft.

Monroe County

Franklin Township: Christy et al 1 Mary Hagerman Sec. 14, 40,000 cu. ft. gas, Salt sand (Squaw dry), T.D. 1,502 ft.
Washington Township: Herman Hill et al 1 Forrest Dye, NW Sec. 6, ¼-bbl pumper, Squaw sand, T.D. 1,500 ft.

Noble County

Noble Township: W. C. Harper 2 John Hayes, Sec. 34, 5 bbl., shot, Macksburg 300-ft. sand, T.D. 240 ft.

Perry County

Clayton Township: Palm Oil Co. 2 New Perry Coal Co., Sec. 9, 125 bbl., shot, Clinton, T.D. 3,323 ft.
Pleasant Township: Allegheny Oil Co. 29 Elizabeth Berrisford, NE Sec. 33, 4 bbl., shot, T.D. 1,078 ft.
Reading Township: Preston Oil Co. 1 Arthur E. Shaw, NW Sec. 2, dry, Clinton sand, T.D. 2,910 ft.

Stark County

Lake Township: J. C. Steiner et al 1 Louis Waltenbaugh, Sec. 22, 400,000 cu. ft. gas, shot, Clinton, T.D. 4,558 ft.

Tuscarawas County

Franklin Township: East Ohio 1 Peter Anderegg, Sec. 12, 740,000 cu. ft. gas, shot, Clinton, T.D. 4,288 ft.

Van Wert County

Van Wert Corporation: Marsh Foundation 1 fee, 50,000 cu. ft. gas, Trenton, T.D. 1,223 ft.

Washington County

Aurelius Township: Nichels et al 1 William Atkinson, Sec. 17, 1 bbl., Macksburg 300-ft. sand, T.D. 355 ft.
Liberty Township: E. A. Metcalf et al 4 G. C. Hendershot, Sec. 28, dry, Keener sand, T.D. 1,380 ft.
Ludlow Township: Beardsmore Oil Co. 1 Perry Cline, NW Sec. 14, 5,800 cu. ft. gas, Berea grit, T.D. 1,886 ft.

INDIANA

EVANSVILLE, Ind., Feb. 10.—The biggest disappointment of the week in Indiana was the failure of Carter 1 Highman, SW SE SW 31-5s-13w, to find profitable saturation. This well, a prospective pool opener in Posey County, found the Tar Springs dry at 2,194-2,209 ft. and the Bethel dry at 2,803-37 ft. Slight saturation was encountered in the Palestine sand at 1,971-79½ ft. but was not considered sufficient for commercial production.

With Carter 1 Highman dry, the hopes of a new oil play in Posey County depend on Ed Holman 1 Oeth. This well, near completion in NE SE NE 6-4s-13w, is testing the McClosky at a total depth of 2,908 ft. and has been swabbing oil and water since an acid treatment of this formation. Saturation was also encountered in the Cypress at 2,496-2,507 ft. and the Bethel at 2,642-52 ft. Both sands are yet to be tested.

Gulf 1 Burrows, SW NW SW 8-5s-13w, another closely watched Posey County wildcat, was dry at a total depth of 3,086 ft. This well was drilled about 1½ miles southeast of New Harmony, Ind.

INDIANA COMPLETIONS

Gibson County

Mabee O. & G. 4 New Harmony Bank.....SW SE NW 27-3s-14w
Pumped 85 bbl., 2,000 gal. acid, McClosky 2,859 ft., 2,873-79 ft., T.D. 2,881 ft.

Greene County

Commonwealth 1 L. L. Tucker NE SE NE 16-6n-6w Dry, Ste. Genevieve 575 ft., St. Louis 682 ft., Devonian 1,730 ft., T.D. 1,790 ft.

Pike County

F. J. Ellison 1 Caldmeyer.....SW SW NE 11-3s-7w Dry, Glen Dean 990 ft., Golconda 1,048 ft., Barlow 1,162 ft., Cypress sand 1,168 ft., Renault 1,218 ft., Ste. Genevieve 1,240 ft., H.F.W. 1,399-1,404 ft., T.D. 1,404 ft.

Posey County

Carter 1 Highman.....SW SE SW 31-5s-13w Dry, St. Louis 3,032 ft., T.D. 3,039 ft.
W. C. McBride 10 Swanders....NE NW NE 4-4s-14w Pumped 185 bbl., 20-qt. shot 2,604-17 ft., perf. 2,537-48 ft., T.D. 2,618 ft.
C. W. McKeeken et al 5 Keck SW SW NW 35-3s-14w Rig abandoned.

INDIANA DRILLING REPORT

Gibson County

J. E. Amos.....NW NW NW 19-3s-13w T.D. 2,094 ft., 20-qt. shot 2,080-94 ft., cleaning out.
Oleum Pet. Co. 1 Bank.....SE SE NW 5-2s-8w T.D. 1,536 ft., P.B. 1,196 ft., 40-qt. shot 1,188-93 ft., cleaning out.
Hyslop et al 1 fee.....NW NE NW 20-1s-9w S.D. 1,495 ft.

Knox County

Naomi Oil 1 Walden.....NE NE NE 10-5n-10w Rigging up machine.
C. L. McGuire 1 Bland.....SE NE SE 15-5n-10w Set 10-in. 100 ft., base Pennsylvanian 1,110 ft., Jackson 1,182 ft., Cypress 1,222 ft., Renault 1,365 ft., Aux Vases 1,375 ft., Ste. Genevieve 1,393 ft., Rosiclare 1,407 ft., Fredonia 1,418 ft., St. Louis 1,590 ft., drilling 1,670 ft.

Orange County

United States Oil 1 G. E. Willyard NW NE SW 33-1n-1w Drilling 240 ft.

Posey County

McCummings et al 1 Oakland City College.....NW NW SE 16-8s-14w T.D. 2,589 ft., drilling plug.
Ed Holdman et al 1 Oeth.....NE SE NE 6-4s-13w T.D. 2,981 ft., will perf. casing 2,497-2,505 ft. and 2,626-50 ft.

Spencer County

J. B. Miller et al 1 Dooley....NW NE NW 19-7s-7w Location.

Steuben County

C. C. Goff 1 Robertson.....SE SE SE 25-36n-13e S.D. 1,000 ft.

Sullivan County

W. J. Reynolds 1 Poe.....NE NE SW 3-8n-10w T.D. 1,464 ft., show oil 1,439-64 ft., 20-qt. shot on bottom, cleaning out.

Vanderburg County

T. W. Drake 1 Nurrenbern....SE NE NE 6-7s-14w Location.

Vigo County

Sage & Farley 1 Campbell....S½ NE NW 24-11n-8w Drilling 1,250 ft.

WESTERN KENTUCKY

Ballard County

One mile east of Wickliffe: Haynes & Thomas 1 Maud Carpenter, rigging up for Devonian test.

Daviess County

Maceo district: Jess Ashby et al 2 Mrs. M. Dixon, dry, T.D. 796 ft.
Whitesville district: Tuttle et al 1 Ira Norris, dry, T.D. 490 ft.

Henderson County

Bluff City district: A. V. Smith et al 1 B. S. Morris, dry, T.D. 1,025 ft.

Ohio County

Pleasant Grove Church district: Joe May et al, 55 bbl., 60-qt. shot, Jett sand, 314-31 ft.
Buford district: Rex-Pyramid 4 Albert Jolly, dry, T.D. 1,130 ft.
Oaks district: Cumberland 40 Rolla Richards, 50,000 cu. ft. gas, Jett sand, 367-77 ft., T.D. 425 ft.

West Central Texas Fields

(Continued from Page 80)

Fisher County

General Crude Oil 12 Flanigan, center of old Royston field, Ordovician test, drilling 5,952 ft.
F. A. Stephenson 1 Humphries, NW NW Sec. 49, Blk. 1, H.T.&B. Sur., 3,350-ft. test, moving in machine 2,987 ft., T.D.
Landers & Eisele 1 Mose Newman, SE NW Sec. 8, Blk. 20, T.&P. Sur., first report.

Jones County

Shaheen Oil 1 Young, 1,630 ft. from N and 300 ft. from E lines, S. Andrews Sur. 191, 2,500-ft. test, T.D. 1,650 ft., S.D.
Danciger O. & R. 1 H. E. Gale, NE NE Subd. 91, De Witt C.S.L. Sur., 2,500-ft. test, drilling 2,336 ft.
H. Hines and W. D. Brookover 1 A. N. Wimberly, SW SW Subd. 91, De Witt C.S.L. Sur., 2,500-ft. test, drilling 150 ft.
Fain-McGaha Oil 1 Moore, 660 ft. from NE and 1,320 ft. from SE of S 107 acres of J. D. Maltby Sur. 252, 2,500-ft. test, drilling 1,145 ft.
T. D. Humphrey 1 Norwood, SW NE Sec. 18, Blk. 15, T.&P. Sur., 2,750-ft. test, drilling 2,770 ft.
Gillespie 2 Young, NE NE Sec. 53, O.A.L. Sur., drilling 1,700 ft.

McCulloch County

W. J. Willard 1 E. B. Garrett, 467 ft. from N and E lines of Sur. 934, Abst. 1196, 3,000-ft. test, S.D. 350 ft.
R. E. Clark 1 J. B. Lively, SE SE SE Sec. 931, H. F. Hatfield Sur., 8¼-in. 232 ft., drilling 510 ft.

Palo Pinto County

Wilcox O. & G. 1 Rogers, 467 ft. from S and E lines, Sec. 894, T.E.&L. Sur., S.D.O. 3,330 ft.
Hickok Prod. and Reynolds 1 J. R. Halsell, 467 ft. from S and W lines, Sec. 92, B.B.B.&C. Sur., Abst. 105, 5,500-ft. test, drilling 845 ft.

Shackelford County

R. H. Roark 1 Lee, 1,170 ft. from N and 2,790 ft. from E line Sec. 37, Blk. 12, T.&P. Sur., 1,250-ft. test, first report.

Taylor County

Ce-Beth Oil 1 City of Abilene, south shore of Lake Abilene on city property, 4,000-ft. test, T.D. 2,300 ft., S.D.
J. Bay Robertson and J. B. Dunigan 1 G. O. Creswell, SE SE SW G. Hancock Sur., 3,850-ft. test, drilling 830 ft.
J. T. Anderson 1 Eula T. Stith, 6,640 ft. from W and 330 ft. from N lines of R. Turner Sur. 25, 2,250-ft. test, location.

New Field at Chenango; One In Prospect at La Ward

By NEIL WILLIAMS

HOUSTON, Tex., Feb. 10.—While one wildcat located in the Chenango area, Brazoria County, was being placed on production to open a new Texas Gulf Coast field, preparations were being made to test another probable pool opener in the La Ward area, Jackson County, where drill-stem testing earlier in the week recovered pipe-line oil.

J. Newton Rayzor 1 J. W. Christian, a wildcat located just southwest of the town of Chenango in the William Parker Survey, Brazoria County, flowed 605 bbl. of fluid per day through a ¼-in. choke of which 453 bbl. was 31.7-gravity oil and 152 bbl. salt water. Tubing pressure was 860 lb., and shut-in casing pressure 1,225 lb. Drilled with much secrecy, complete details on completion of the well were just revealed during the week. The well was originally tested through perforated casing at 8,565-74 ft., and flowed at the estimated amount of 28 bbl. of fluid per hour before it began to show salt water. The perforations were squeezed off and final completion was made by perforating casing at 8,564-72 ft. The Discorbis was topped at 6,509 ft., Large Discorbis 6,999 ft., Heterostegina 7,331 ft., Marginulina 7,663 ft., Frio at 8,140 ft., and the producing sand section was logged at 8,558-76 ft. Total depth of the hole is 9,560 ft., and 5½-in. casing was cemented at 8,627 ft.

SUMMARY OF COMPLETIONS

Texas Gulf Coast District

	No.	Bbl.	Footage
Oil wells: Fields	12	11,953	85,568
Dry holes: Fields	2	.....	8,154
Wildcat	1	.....	8,400
Total	15	.....	102,122

The well was drilled on a farmout lease from Sun Oil Co., and is located in an area which has been worked extensively with various types of geophysical instruments. It is situated about 3½ miles northwest of the Angleton field, and about 7 miles southeast of the Lochridge field. Stanolind Oil & Gas Co. controls the majority of acreage around the well, while protection acreage is held by Humble Oil & Refining Co., Gulf Oil Corp., and a few independent operators.

Location for another deep Frio sand test was made in the county by Pure Oil Co., which is scheduled to move in material at an early date for 1-B Greenameyer located 3,492 ft. from the north line of the J. E. B. Austin Survey, and 2,607 ft. west of the east line of Block F, of the Manor Lake Plantation subdivision. This places the well 4½ miles northeast of West Columbia, and about 8 miles west of the above discovery.

Halls Bayou.—In the same county and located in Halls Bayou area, Strake Petroleum Co., Inc., was drilling plug preparatory to deepening 1 Griffith from its present depth of 10,328 ft., where 7-in. casing was recently cemented after an attempted blowout.

Rowan.—Distillate production from what appears to be a new sand on the north side of the Rowan field, Brazoria County, was opened as Humble 3 Hubbard was flowing gas and distillate while cleaning out from perforated casing at 9,090-9,105 ft. Oil production is from the discovery pay at approximately 8,500 ft., while gas-distillate has been recovered in several wells from 8,900 ft. The rig will be moved in for 5 Hubbard, a north offset to Rowan & Nichols Oil Co. 1 Bradbury in the William Harris Survey.

La Ward Discovery

Another Frio sand discovery is believed to have been opened northeast of La Ward, Jackson County, as Humble Oil & Refining Co. prepared to test 1-B Mauritz, located in Block 10, B. J. White Survey. The hole is bottomed at 5,940 ft., and 5½-in. casing was cemented at 5,647 ft. A 10-minute drill-stem test at 5,207-35 ft. recovered 1,450 ft. of pipe-line oil and tested 70 lb., working pressure, while sand with an oil odor was cored at 5,588-95 ft., but no drill-stem test of this section was made. The well is on strike with the West Ranch and Lolita field, and is the third test to be drilled, being located about 1½ miles southwest of 1 Egg, which logged sufficient showing to cement casing for testing in the 5,200-ft. sand, but the well was too low on structure to produce. Humble staked location for 1 Fred Robbins in Block 15, an offset to the prospective producer, while in the same area, Norsworthy Production Co. staked location for 1 Combs in the J. A. Pierce Survey No. 32.

Lolita.—Production from the 5,200-ft. sand in the Lolita field, Jackson County, was apparently extended several hundred feet westward into the Lolita townsite as Stanolind Oil Co. of Kansas 2 Willoughby prepared to test after coring sand showing oil at 5,288-92 ft.

Red Fish Reef.—In the Red Fish Reef field, offshore from Chambers County, in Galveston Bay, Humble Oil & Refining Co. was preparing to test 8-A 223 State located several hundred feet from the discovery well. After drilling to a total depth of 10,924 ft., 7-in. casing was cemented at 10,880 ft., and the first production test is scheduled to be made at intervals from 10,734-10,830 ft., where sand showing oil was logged. The company's 9-A-263 State is bottomed at 11,118 ft., and side-wall cores are being cut. This is the deepest well drilled on the structure.

Anahuac.—The Anahuac field, Chambers County, was extended several hundred feet to the southeast with the completion of Humble 56 Middleton. Sand showing gas was topped at 7,067 ft., and oil sand, topped at 7,194 ft., was cored to a total depth of 7,224 ft., and the well was completed with 5½-in. casing cemented at 7,219 ft. Initial production was 735 bbl. per day through a ¼-in. choke. The Heterostegina was topped at 6,707 ft., Marginulina 6,768 ft., and the Frio at 7,067 ft. Sand showing gas was logged in the Marginulina formation at 6,944-66 ft.

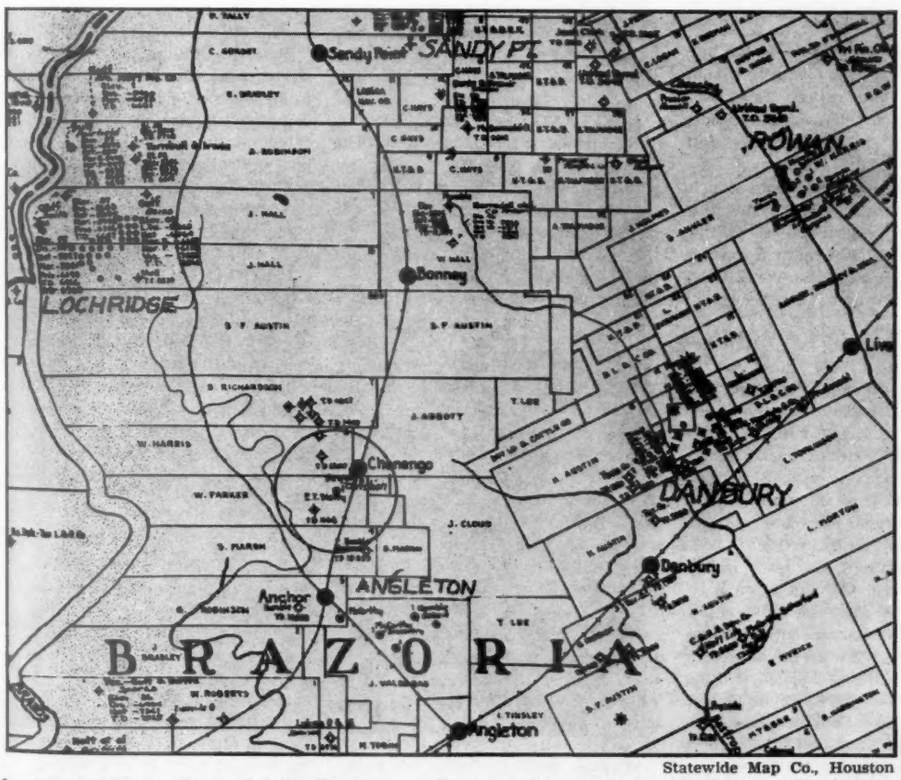
Wilcox Trend Play

Wildcatting along the Wilcox trend continued to attract attention as another wildcat located in southern Grimes County reported showing of gas and distillate in a broken sand and shale section in the Wilcox. The well is R. A. Irwin et al 1 South Texas Development Co. in the R. O. Lusk Survey. The Wilcox was reported topped at 7,663 ft., and the following showings have been reported. Sand shale with streaks of sand showing gas 7,867-77 ft., sand with a gas odor 7,877-87 ft., sandy shale with gas odor 7,897-7,903 ft., and 9 ft. of sand with a gas and distillate odor was logged at 7,851-61 ft. This well is located about 7 miles southeast of Plantersville, and is being drilled on a farmout lease from the Standard Oil Co. of Texas.

Magnolia.—In the Magnolia district, Montgomery County, Superior Oil Co. 1 McWhorter flowed 15 bbl. of fluid per hour through perforated casing at 8,855-75 ft., of which 95 per cent was salt water and 5 per cent distillate. Working pressure built up to 65 lb. While making another test at 8,830-35 ft., the tubing collapsed and the well is now shut down. Three-inch drill stem has been moved to the location, and the well is scheduled to be drilled to a total depth of 10,000 ft. unless commercial production is not developed at the present depth.

Cold Springs.—McDannald Oil Co. 1 Foster Lumber Co., a Wilcox test located in the Cold Springs area, San Jacinto County, is coring in sandy shale below 7,778 ft., with no shows reported. The well is reported to be in the Wilcox, but the top of the section was not available.

Brookshire.—In Waller County, John Mayo et al 1 Donigan, a projected Wilcox test located in the Brookshire area, is drilling in shale below 4,068 ft. after topping the Heterostegina at 3,030-3,104 ft., and the Frio at 3,134-64 ft.



Statewide Map Co., Houston

Location of J. Newton Rayzor 1 J. W. Christian, new Frio sand discovery in Brazoria County and its relation to other producing fields

TEXAS GULF COAST COMPLETIONS

Brazoria County

Old Ocean field: Stanolind 1 Wallis, 319 bbl., ¼-in. choke, perf. casing 10,118-44 ft., T.D. 10,810 ft.
Texas 1 Walker, 485 bbl., ¼-in. choke, top sand 10,132 ft., T.D. 10,990 ft.
West Columbia field: Texas 19 Phillips, 507 bbl., ¼-in. choke, top sand 5,576 ft., T.D. 5,681 ft.

(Continued on Page 88)

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Among the Drilling

GLEN H. McCARTHY, Houston, Tex., extended production in the Old Ocean field, Brazoria County, Texas, several hundred feet northeast with the completion of Texas Co. 1 Walker, and the rig is being moved to a new location. Two other operations are reported in the same field for Shell Oil Co., Inc. Four operations are reported for the Blessing, Keran and League City fields for Texas Co., Barnsdall Oil Co., Cities Service Co., and Phillips Petroleum Co., while in the Angleton field, Brazoria County, a new operation is being started for F. J. Anderson.

DELTA Drilling Co., of Tyler, Tex., is starting operations on 1 Kangerga Brothers, a proposed 8,200-ft. test in the Chicken Feather community of Rusk County, north of Henderson. Location is 502 ft. from the south line and 1,170 ft. from the east line of 133 acres in the R. L. Lane Survey.

MORRIS HAMILTON Drilling Co., Houston, Tex., has cemented casing in the Weser field, Goliad County, Texas, preparatory to testing W. R. Davis Co., Inc., 2-B Albrecht, while in the Rincon field, Starr County, Texas, one rotary is being used on a workover job for Continental Oil Co.

MERCURY Drilling Co. is the new name for what was formerly Claude Drilling Co. and offices have been moved to Tulsa. Operations are under the direction of Chester H. Westfall, president, formerly of Ponca City, Okla. The company has production in Texas and Kansas. J. F. Cromwell is in charge of western Kansas drilling operations. The main camp in western Kansas is at Susank and Texas headquarters are located at Great Bend.

PARKER Drilling Co., Houston, Tex., opened a new sand in the Schooner Bayou field, Vermilion Parish, coastal Louisiana, for the Union Oil Co. of California with the completion of 1-B Vermilion Parish School Board. In the same district, drilling was started in West Baton Rouge Parish for Amerada Petroleum Corp.'s wildcat located on the Wilbert's Sons Lumber & Shingle Co. lease in the Port Allen area. One operation is reported at the Anse La Butte field, St. Martin Parish, Louisiana, for Glassell & Glassell, while on the old Avery Island dome, Iberia Parish, drilling continues below 9,000 ft. in Gulf 1 Petit Anse Co. Contract has been received from Barnsdall Oil Co. for a wildcat to be drilled in Terrebonne Parish, Louisiana, while in the Texas Gulf Coast area and located offshore from Jefferson County, Texas, in the Gulf of Mexico, one rotary is running for the British American Oil Co.

FAIN Drilling Co., Oklahoma City, Okla., et al 1 Donoghue found the Bartlesville sand at 5,042 ft., cored to 5,062 ft. and was reaming to core ahead. The test is located in NW SE 7-17-1w, near Langston in Logan County, Oklahoma.

CRON & GRACEY Drilling Corp., Houston, Tex., extended the Schooner Bayou field, Vermilion Parish, Louisiana, 1½ miles northeast, and opened production from a new sand with the completion of Union Oil Co. of California 4 Louisiana Land & Fur Co. In the Lake Long field, La Fourche Parish, Fohs Oil Co. 13 State, a 10,000-ft. hole is being completed after cementing casing on bottom at 10,160 ft., while in the Duck Lake area, St. Martin Parish, drilling was started on Shell 1 State. In Southwest Texas, and located near the town of Rockdale, Lee County, drilling was started at Shell 1 Brown.

HERNDON Drilling Co. extended production ½ mile northeast of the Hagen pool in Barton County, Kansas. Its 1 Hagen, CNL NE SW 20-20-11w, obtained a potential of 337 bbl. daily. The well is southeast of Ellinwood.

LOFFLAND BROTHERS, Houston, Tex., opened a new Frio sand field for the Texas Gulf Coast with the completion of J. Rayzor 1 Newton located just southwest of the town of Chenango, Brazoria County. In the new Willamar field, Willacy County, Texas, Pan American 1 Kent, an outpost test, continues to drill below 7,300 ft.

HOUSTON Drilling Co., Houston, Tex., is coring below 8,100 ft. in R. A. Irwin et al 1 Southern Lumber Co., a projected Wilcox test located in southern Grimes County, Texas. In the Willis area, Montgomery County, Texas, another Wilcox test is being started for O. C. Garvey, while another operation is reported in the Hilje field, Wharton County, for Gem Oil Co.

O'CONNOR Drilling Co. late last week reached a depth of 3,000 ft. on its 1 Lynn, NE NE NW 6-11-9e, Pottawatomie County, Oklahoma. The test is east of Asher.

HAYES Drilling Co. et al 1 McKernan is shut down and waiting on orders at 4,072 ft. with a hole full of water. The test, located in E½ SE NW of 25-12-8e, Okfuskee County, Oklahoma, is bottomed in the Hunton lime with the water coming from 4,063 ft. to the present depth. The Dill pool is to the south of the test.

W. G. RAY Drilling Co. has suspended drilling at 8,510 ft. in its 1 Noel estate, SE 30-21-14, Caddo Parish, Louisiana. Contract on the test called for drilling to 8,500 ft. The Cotton Valley pay (lower Marine) was topped at 6,410 ft.

LON CRON, Houston, Tex., is rigging up in Wharton County, Texas, for R. O. Lowrance 1 J. J. Juhl, a projected 6,500-ft. wildcat located in the P. J. Pooler Survey 14.

SUMMIT Drilling Co., Tulsa, and Deep Rock Oil Corp. 2 Whittaker, NE NW SE 31-4n-6e, Pontotoc County, Oklahoma, set 56 ft. of 13½-in. casing after spudding to 100 ft. The test is located close to the town of Ada.

S. B. ROBERTS Co., of Abilene, Tex., is coring below 3,000 ft. on Fortex Oil Corp. 1 J. S. McKeever, a wildcat test in northwestern Shackelford County, Texas, 1 mile northeast of the Ivy field.

M. B. K. Drilling Co. 4 Gist, in the Foster pool, flowed 1,158 bbl. from a total depth of 4,335 ft. when it was completed last week. The well is located on the northeast edge of the pool in Section 9, Block 42, Township 2s, T.P. Survey. Before completion, the well was shot with 530 qt. of nitroglycerin.

HARRY L. EDWARDS Drilling Co., Houston, Tex., is preparing to complete Midstates Oil Co.'s first producer in the West Ranch field, Jackson County, Texas, and the rig will be moved to a new location. One rotary is running in the Abbeville field for Continental Oil Co., while two operations are reported in the Esperson field, Liberty County, Texas, for W. P. Luse and General Crude Oil Co.

PORTABLE Drilling Co. 1 Conway was drilling in sand with dolomite streaks at 4,880 ft. last week. The test is located in the NE NE NE 16-23-2w, Noble County, Oklahoma. The Simpson formation was topped at 4,795 ft.

RHODES Drilling Co., of Abilene, Tex., is alternately coring and drilling around 3,800 ft. in a wildcat test in southeastern Taylor County, Texas, being drilled for J. B. Robinson and

Contractors

Jim Dunigan on the C. O. Creswell ranch. The operation is on acreage farmed out by Shell Oil Co., Inc. The Gardner sand which produces in the Goldsboro and Novice fields of Coleman County, Texas, is sought in the Robinson and Dunigan test.

COMMERCIAL Drilling Co., Tulsa, topped the Hogshooter lime at 2,517 ft. and was drilling below 2,850 ft. on its 1 McCully, NE SE SE 6-7-4e, Pottawatomie County, Oklahoma.

CROSBY Drilling Co., Houston, Tex., is drilling in shale below 4,300 ft. in the company's 1 Gayle located in the A. M. Clare Survey, Jackson County, Texas. In the Halls Bayou, Brazoria County, Texas, plug is being drilled in Strake Petroleum Co., Inc., 1 Griffith, preparatory to drilling deeper from a depth of 10,328 ft., where a string of 7-in. casing was recently cemented. Another operation is being started in Rapides Parish, Louisiana, on a projected 8,500-ft. wildcat for Lynes & Douglas.

H. & M. Drilling Co. ran rods and tubing in its 1 Lewis, CEL SW NW 36-19-2w, McPherson County, Kansas, The test has 1,200 ft. of oil in hole at a total depth of 2,961 ft. and was acidized with 1,000 gal. It will be tested.

STEARNS Drilling Co., Wichita, Kans., opened the third new pool of 1941 for Kansas when they found production north of the Emmeran pool at 1 F. Witt, S½ NE NW 28-12-16w. The well was given an initial potential of 168 bbl., and the pool was named North Emmeran.

L. & W. Drilling Co., Mattoon, Ill., is operating rotary rigs in the Hoodville field of Hamilton County, Illinois, and at present is drilling Lloyd Sparrow 1 York, 34-5s-6e, just a few feet off Highway 142.

HARRY L. EDWARDS, Houston, Tex., has accepted the job of collecting old iron, steel and junk in the Texas Gulf Coast area to aid the British.

GEORGE P. LIVERMORE, Odessa, Tex., is deepening a wildcat well on the Dela Wright land, 7 miles due west of Whiteface, Tex., which was capped 2 years ago at a total depth of 4,900 ft. after producing gas and oil. The hole was first drilled with cable tools and was a failure.

FALCON-SEABOARD, Tulsa, is pioneering in both depth and use of a rotary rig for drilling in the Pennsylvania-West Virginia area. On the test being drilled for the Hope Natural Gas Co. in Harrison County, West Virginia, a depth of 5,835 ft. has been reached. Progress has been retarded during the past 35 days by a hard quartzite with some marble and possibly granite mixed in. Since passing 9,750 ft. a total footage of 85 ft. has been cut with 56 bits; the cutting rate has varied from nothing to as much as 2 ft. per day. Late last week the formation softened up and 3 ft. was made in one 24-hour period. The drilling has been hard all the way and a total of 248 bits of the 9⅞-in. size has been used. The test will be carried to 9,900 to 10,000 ft.

BIG CHIEF Drilling Co. is deepening two wells from the Devonian to Trenton lime in the Salem field for the Texas Co. They are 3 Maxwell C, SE SE SE 29-2n-2e, which is below 4,100 ft. and 21 Fredrich A, SE NW SW 29-2n-2e, which is drilling near 4,600 ft.

WHISENANT & TRENCHARD got a failure in the McClosky lime in its 1 Grant, NW NW SW 29-3s-3e, Jefferson County, Illinois. The test was about 5 miles south of the town of Mount Vernon.

ZEPHYR Drilling Co., Tulsa, has completed its 7 Stephens, SE NW SE 31-6n-3e, St. James pool in Fayette County, Illinois. The well made 28 bbl. in 8 hours from the Weiler sand at a total depth of 1,628 ft.

H. H. WEGENER moved in machine to drill the E. S. Adkins 1-D Old Ben Coal Co., SE SE SE 4-8s-2e, Williamson County, Illinois.

WARREN-BRADSHAW, Tulsa, was in the process of completing Texas Co. 7 C. Stone, S½ SE SW 9-3s-7e, West Fairfield pool of Wayne County, Illinois. Seven-inch casing was set at 3,323 ft. and the well was swabbing about 50 bbl. per day from the McClosky lime.

DEE BROTHERS were waiting for cement to set on the W. C. McBride, Inc., 3 Frieman, NW SE NW 29-3s-4w, McKinley pool of Washington County, Illinois. Pipe was set on top of the Bethel sand at 998 ft.

PIONEER Drilling Co. has been busy on four drilling wells of the Exchange (Sinclair) Oil Co. in the Hoodville pool of Hamilton County, Illinois. Exchange 14-A Friel, SW NW SW 35-5s-6e, has been completed in the Benoist sand at 2,940-48 ft. for 80 bbl. per day; 4-A Friel, NE NE SE 34-5s-6e, has been completed in the Aux Vases sand at total depth of 3,046 ft. for an initial of 455 bbl. daily; 17 Friel, NE SE 34-5s-6e, is testing the Aux Vases at 3,035-36 ft. and was swabbing more than 200 bbl. daily, and the 16-C Friel was being plugged back from the Aux Vases at 3,081-89 ft. to the Benoist sand.

Crew of Olson Drilling Co. at work in the Cumberland, Oklahoma, field. From left to right: R. S. Kirkhart, Frank Goe, Art Hayward, driller, Jack Goseph and Carl Shumaker

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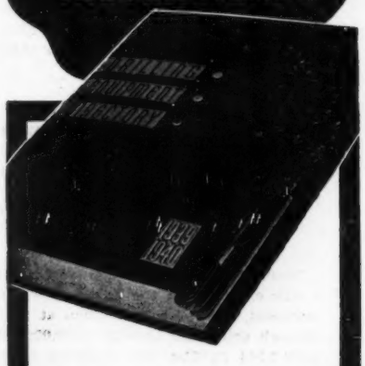

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Deepen Mahoney Dome Well For Big Increase

By T. R. INGRAM

DENVER, Colo., Feb. 10.—Rocky Mountain area had nine completions, of which eight were oil wells and one was a dry hole, which compares with five in the previous week. There were six new operations.

Best well was Sinclair-Wyoming 2-A Mahoney, in the Mahoney Dome field, Carbon County, Wyoming, which made 596 bbl. initial after being deepened 13 ft. and recompleted. Cut Bank had another large well at the south end of the field in Consolidated Gas 1 Frary-Tribal-191, which swabbed 569 bbl. from the Cut Bank sand. Others included a 2 to 5-bbl. well in Huerfano County, Colorado; a 20-bbl. pumper for Continental in Lance Creek in 23 Tom Bell; a 289-bbl. well for A. P. Consolidated in Cut Bank; A. B. Cobb 7 Farmers State Bank for 48 bbl., and Glacier 4 O'Brien for 80 bbl.; a 20-bbl. pumper in Kevin-Sunburst in Big West 9 Allen, and a dry hole in the Dividend Oil Refineries, in Platte County, Wyoming.

Mountain Fuel Supply has a near completion in 2 Musser, Powder Wash gas field, Colorado, and Kevin-Sunburst is promised an extension on the west side in High Gravity 1 Government.

SUMMARY OF COMPLETIONS

	No.	Bbl.	Footage
Colorado			
Oil wells	1	5	670
Wyoming			
Oil wells	1	20	5,484
Dry holes	1	.....	3,815
Total	2	.....	9,299
Recompletion	1	596	.....
Montana			
Oil wells: Cut Bank	4	986	11,528
Kevin-Sunburst	1	20	1,205
Total	5	.....	12,733

COLORADO

Boulder County

Bartson Oil 1 Chenburg.....SW SW SE 15-2n-70w
Standing 110 ft., 12½-in. at 65 ft.
J. A. Warren 3 Maxwell .... NW NE NW 24-1n-71w
Drilling 1,210 ft. in black shale.

Huerfano County

S. W. Pressey 4 Ojo, NW NW NW 11-29s-69w, made 2 to 5 bbl. a day on the pump at 105-33 ft., after plugging back from 670 ft. It is a completion.

I. E. Sideman-White 1-X Martinez SW NE 33-26s-67w
Drilling below 1,650 ft. in Niobrara formation, Apishipa sand expected within next 200 ft.

Moffat County

Mountain Fuel Supply 2-A Musser, which will mark a mile extension of the Powder Wash gas field to the southeast, is a near completion at 2,504 ft. Last test through drill stem showed 4,500,000 cu. ft. of gas at 2,494-2,504 ft. The 7-in. is being set on top of this sand. Several sands above showed gas and salt water.

C. R. Privett 1 Strelling.....NE SE SE 12-5n-96w
Moving in.
Mountain Fuel Supply 2-A Musser .....
CWL NW SE 4-11n-97w
T.D. 2,504 ft., running 7-in. to set at 2,494 ft.

Park County

South Park Oil 1 Lamar.....NE NE SE 34-11s-75w
S.D. 7,725 ft.

Rio Blanco County

Texas-California 5 Unit ..... NW NE NE 34-3n-94w
T.D. 6,193 ft., reamed to 6,192 ft., preparing to run 7-in.

Routt County

Craig-Moore 1-X Erwin..... C SW NE 33-7n-85w
Drilling 2,615 ft., 5-in. at 2,502 ft.

WYOMING

Big Horn County

Valentine Kirk et al have started a test in 1 Mann in a fault block on the southeastern end of the Garland structure, a mile south of the nearest producer, and south of a group of shallow light-oil wells drilled a number of years ago in a fault block between present location and the field proper. It will be drilled with rotary.

Valentine Kirk 1 Mann.....Lot 42-J-55n-97w
(Approximately SW SW SW Sec. 11), spudding 100 ft., first report.

Carbon County

Sinclair-Wyoming 2-A Mahoney unit, C SW NE 34-26n-88w, Mahoney Dome field, was recompleted in the Tensleep at 4,520 ft. for 596 bbl. first 24 hours. Top of pay was at 4,287 ft. and 7-in. was set at 4,285 ft. It made 80 bbl. a day initial at 4,507 ft., where it was completed in 1939. It is an east offset to 3 Mahoney, which was recompleted last fall for 511 bbl. a day under choke after deepening from 4,505 ft.

Ohio 12 State.....CW¼ NE 34-20n-78w
Drilling 730 ft.
Sinclair-Wyoming 15-A Wertz....SW SW NE 7-26n-89w
Drilling 6,040 ft. in Tensleep.
Sinclair-Wyoming 19 Wertz ....SE SW SW 6-26n-89w
T.D. 500 ft., reaming 20-in. cemented at 38 ft.
Sinclair-Wyoming 20 Wertz.....NE SW NE 7-26n-89w
Cellar.

Natrona County

Royal Oil Corp. 1 Midert.....SW SW SW 26-35n-80w
S.D. 1,508 ft.

Niobrara County

A test of the Bell sand on the west side of Lance Creek is under consideration by the Minnelusa Oil Corp. and other companies in the field in 4 Joss, SW NE SW 6-35n-65w, which is shut down for orders at 5,474 ft. Only two wells have been drilled to that horizon and both of these were on the northeast side in a district which is now believed to show local faulting in the Leo formation. One of these was Continental 10 Tom Bell, C SW NW 34-36n-65w, which was drilled in 1937 to a total depth of 6,253 ft. and plugged back and was completed in the Leo. It had a show in the Bell sand, but was not considered commercial. However, it is now believed that the Bell offers considerable promise in the main part of the field. The Continental well, elevation 4,351 ft., had the top of the Minnelusa at 4,600 ft., and of the Leo at 5,278 ft. The log of the lower section is as follows:

Upper Bell sand	5,772-5,810
Red shale	5,810-5,840
Lower Bell	5,840-5,932
Madison	5,936-6,250
Deadwood	6,250-6,253

The other well, which is in the same general area, was Argo 4 Ford, SW NW SE 33-36n-65w, elevation 4,451 ft., which had the top of the Madison at 6,002 ft., and went to 6,016 ft. and then plugged back and completed in the Leo for 170 bbl. a day.

The present price of Lance Creek crude, which is based on a 25-cent differential under the Mid-Continent price for 36-gravity oil, is 77 cents a barrel. This differential was established several years ago in an effort to provide a market for the crude under which the Stanolind Pipe Line Co. revamped its trunk line to eastern markets. The secretary of the interior took steps last year to bring about an increase in the price for government-royalty oil and hearings were conducted. It is expected that some action will be taken at an early date and it is reported that on or about July 1 the differential will be reduced by 13 cents and price increased to 90 cents.

One well was completed in Continental 23 Tom Bell, SE NW SW 34-36n-65w, which pumped 20 bbl. a day at 5,359 ft. from the Leo sand after plugging back from 5,486 ft.

Ohio 19 Putnam.....CWL NW 4-35n-65w
Location.
Continental 24 Tom Bell.... NW NW NW 34-36n-65w
Drilling 3,575 ft. in new hole.
Argo Oil 15 Elliott.....NW NE SW 5-35n-65w
Drilling 5,016 ft., red marker 5,016 ft.
Ohio 9 Agnes Rohlff .....SE NE SE 32-36n-65w
Drilling 4,852 ft. in new hole.

Sublette County

Charles Lackey 1 Government NE SE SW 33-27n-113w
Resumed at 105 ft., outpost, SW La Barge field.
Klumpe Syndicate 1.....NE SW NE 28-27n-113w
S.D. 1,790 ft.

Texas 1-C Government.....SW NW NW 24-27n-113w
Drilling 300 ft.

Platte County

Dividend Oil & Refineries, Inc., 1 Johnson, CSL NW SW 17-24n-66w, Antelope district, was abandoned at 3,815 ft., having run out of hole. It started in the Tertiary in 1936.

Sweetwater County

Sinclair-Wyoming 96-A.....NE SE NE 10-26n-90w
Rigging up to go to Tensleep, contract to Manning & Martin, Inc., first report.
Sinclair-Wyoming 95-A.....SW NW NW 11-26n-90w
Drilling 1,958 ft.
Sinclair-Wyoming 98-A..... NW NW SW 11-26n-90w
Drilling 673 ft., will go to Wall Creek, Lost Soldier field, first report.

MONTANA

Glacier County

Cut Bank continues to show for better wells than the average. This week it led off with Consolidated Gas 1 Frary-Tribal-191, NW NW SE 19-32n-5w, which swabbed 569 bbl. first 24 hours at 2,845 ft., total depth, from the Cut Bank at 2,797-2,837 ft., with the main pay at 2,825-34 ft. It is an outpost at the extreme south end of the field, and a diagonal offset on the southeast to Cobb 1 Tribal-187, which swabbed 187 bbl. initial. In the second 24-hour period it swabbed 499 bbl.

A. P. Consolidated 5 Keisel, SE SE NW 11-34n-6w, swabbed 289 bbl. first 24 hours at 2,895 ft., total depth, from the Cut Bank sand at 2,845-88 ft., and the main pay at 2,874-88 ft.

A. B. Cobb 7 Farmers State Bank, NE NE SE 17-33n-5w, swabbed 48 bbl. first 12 hours at 2,920 ft., from the Cut Bank at 2,877-2,910 ft., with the main pay at 2,900-10 ft. It will be shot. The Sunburst at 2,823-65 ft. had a show of oil and gas.

Glacier Production 4 O'Brien, C S½ SW 32-34n-5w, swabbed 80 bbl. first 24 hours at 2,743 ft., from the Cut Bank at 2,707-43 ft., with the main pay at 2,737-43 ft. It was then shot with 40 qt. at 2,733-43 ft., and is cleaning out.

Glacier Prod. 3 McDougal.....C NW NW 31-34n-5w
Location, first report.
Texas 1 Willis.....SW SW NE 19-32n-5w
Location, first report.
Glacier Prod. 2 Williams..... C NW SE 21-33n-5w
Cemented 10¾-in. at 600 ft., top Colorado 580 ft.
Ed Reagan 1 Tribal-194 ..... CEL SE NE 22-37n-7w
Cemented 10¾-in. at 316 ft., building rotary rig.
Texas 1 Lander.....C SE NE 20-35n-6w
Drilling 2,681 ft.
Frank Henderson 1 Tribal-190 NW NW NW 29-32n-5w
Drilling 1,770 ft., cemented 10¾-in. at 482 ft.
Texas 1 Lander..... C SE NE 20-35n-6w
T.D. 3,165 ft., cemented 7-in. at 3,140 ft.
Dakota-Montana 2 Tribal-136...SW SW SW 15-34n-6w
Cemented 7-in. at 2,888 ft.

Toole County

Big West Oil 9 Allen, CEL SE SW 31-35n-1w, Kevin-Sunburst field, was completed at 1,330 ft., and is pumping 20 bbl. a day from the Sunburst at 1,185-1,205 ft. after acidizing with 1,000 gal.

High Gravity Oil 1 Government, which is located on the rimrock around the Sweetgrass arch to the west of the Rimrock pool in Kevin-Sunburst, is showing for a producer and will mean an extension on the west side. It was shot with 140 qt. in the contact at 2,160-70 ft. and swabbed 9 bbl. first day. If acidization comes up to expectation, it will make a commercial well.

Ohio 6 Carl Lind .....SW SE NW 11-35n-2w
Spudding, first report.
Hole Brothers 1 Potter .....C NE NE 23-33n-4w
T.D. 1,635 ft., fishing for bailer.
High Gravity Oil Prod. 1 Govt. SE NW NE 19-35n-3w
T.D. 2,176 ft., cleaning out to acidize.

NORTHWEST NEW MEXICO

San Juan County

Carroll & Carroll 2 Government C NW NW 12-29n-12w
Drilling 675 ft., 10-in. at 607 ft.
Southern Union Prod. 1 Cornell-Government.....
C SE SW 12-29n-12w
Drilling 1,410 ft., 8¾-in. at 1,390 ft.
Red Cactus Oil 1 Tribal ..... SE SE SE 35-29n-18w
T.D. 900 ft., moving in heavier machine.

Torrance County

Cardinal Oil Co. 1 State.....SE SW 3-8n-14e
Drilling 350 ft.

By
GEORGE WEBER

Deepest North Louisiana Test Showing Little of Importance

SHREVEPORT, La., Feb. 10.—A prospective new oil horizon at Lisbon is of interest this week with developments in the tri-state area continuing quiet. The deepest test yet drilled in the area is progressing north of Lisbon, and new wildcats and deepening jobs on old ones promise to be of later interest.

Union Producing Co. is coring and drilling below 11,500 ft. in Meadows 1-A, north of the Lisbon field, Claiborne Parish. The test has shown few sections showing oil or gas, and has penetrated 1,230 ft. below the top of the Smackover lime, deeper than any North Louisiana test to date.

In the field Oakes et al 2 Sallie Lloyd, southwest of the same operator's 1 Whitman, will test a section believed to differ from that opened to oil production in the Whitman test recently. The well was deepened this week, from its former Pettit production level of 5,328 ft., to the top of the Hosston, or Travis Peak formation. The oil sand discovered at that level last year was expected at about 5,470 ft., but a 10-ft. section cored at 5,420-30 ft. showed oil. A short string of 4-in. casing has been run and operators will test the sand this week end to determine if it is a new horizon.

Pine Island.—In Caddo Parish, the W. G. Ray Drilling Co. 1 Noel estate, deep Pine Island test, was abandoned dry, marking another disappointment to those interested in deep possibilities on the large Pine Island structure.

Throughout the Wilcox trend, from Grant to Madison parishes, wildcatting continues without further shows of possible new fields. Drilling proceeds normally at Olla and Nebo.

SUMMARY OF COMPLETIONS

North Louisiana

	No.	Bbl.	Footage
Oil wells: Caddo	5	174	8,379
Sugar Creek	1	141	5,832
Olla	1	75	2,410
Gas wells: Bellevue	1	1	359
Athens	1	8	6,507
Dry holes: Caddo	1	.....	996
Wildcats	1	.....	8,510
Total	11	.....	32,993

Arkansas

Oil wells: Dorcheat	1	178	8,915
Dry holes: Wildcats	1	.....	1,207
Total	2	.....	10,122

ARKANSAS

Crow Drilling Co. and Turner & O'Farrell 1 Smart, deep Stephens test in northern Columbia County, will be tested shortly in a Travis Peak or Hosston horizon which showed oil. The test was carried into the top of the Smackover lime, but showed cellular lime, which, although oil bearing, has such a low permeability that it will not produce commercially.

Louark Producing Co. are beginning a Miller County wildcat, 1 Hedrick, located between Fouke and Rodessa, and about 5 miles northeast of the latter field. The same operators are testing a possible eastern extension to the Magnolia field of Columbia County.

McKamie Spacing

Following a state-wide hearing held in El Dorado last week the state commission ordered well spacing in the McKamie field of Lafayette County on the basis of one well to 160 acres. This change from 40 to 160-acre spacing is due to proof that the field is a gas pool, as thus far developed. Three wells are producing in the field at present, and three additional ones are drilling. Excepting for the six drilled on 40-acre tracts, however, subsequent wells will be located in the centers of governmental quarter sections. The first such location to be staked was Louark 1 Cornelius, SE 30-17-23.

In Union County C. H. Murphy 1-C Cates, deep test in the South El Dorado field, cored at 6,028-38 ft. and recovered 1 ft. of lignitic sand with a stain and odor of oil, and 6 ft. 6 in. of firm porous permeable asphaltic sand with a good stain and odor. A deeper core showed no further show, and the test is drilling below 6,592 ft.

AVERAGE DAILY PRODUCTION

NORTH LOUISIANA

	Barrels
Caddo, light	6,050
Caddo, heavy	2,100
Cotton Valley	13,500
Cross Lake	2,985
Haynesville	2,625
Homer	2,750
Lisbon	3,000
Olla	9,540
Rodessa	16,275
Sligo	2,355
Urania	2,210
Zwolle	1,310
Total North Louisiana	69,340
Rodessa, Texas	15,910

SOUTH ARKANSAS

Atlanta	2,450
Buckner	2,310
Champagnolle	1,200
Dorcheat	1,425
El Dorado	1,575
Magnolia	19,600
Nick Springs	1,150
Rodessa	1,665
Schuler	16,450
Smackover, light	1,680
Smackover, heavy	13,440
Troy	1,135
Urbana	1,845
Village	1,070
Total South Arkansas	70,025

To Repressure Jones Sand

Arkansas will get its first repressuring project this month, when operations are begun February 15 on a repressuring project of the Jones (lower Marine) sand in the Schuler field, in Union County where there are 146 producing wells.

The project was authorized during the past week by the Arkansas Oil and Gas Commission, after an all-day hearing. Estimates of engineers are that use of repressuring will increase ultimate recovery from this horizon by as much as 12,000,000 bbl. of oil.

EAST TEXAS BORDER

Smith & Turner, East Texas operators, who have two wet gassers producing from the Glen Rose, 8 miles northeast of Carthage in Panola County, made location for 2 J. W. Bird (509-acre tract) in the G. Gillespie Survey. Gas from producing wells is now being sold to United Pipe Line Co.

Another Glen Rose wet gasser loomed on the Shelby County side of the Joaquin-Logansport gas field at Southern Production Co. 1 Price, in White Survey, which was waiting on cement at total depth of 4,935 ft. after showing for a gasser.

NORTH LOUISIANA COMPLETIONS

Wildcat—Bossier Parish

Roy L. Reese et al 1 Bellevue Land ..... SW SW NE 27-20-11
T.D. 3,035 ft., dry, worked over, did not deepen.

Bellevue—Bossier Parish

T. G. Shaw, Tr., 2 Mehaffey ..... NE NW NE 27-19-11
T.D. 359 ft., 1,000,000 cu. ft. gas, spray salt water, 5 7/8-in. casing 317 ft.

Caddo—Caddo Parish

Guy N. Kinney 2 Crystal fee ..... NW NE NE 24-21-16
Pumped 20 bbl. oil, 15 bbl. salt water, T.D. 1,008 ft., 6⅝-in. casing 1,001 ft.

Mahan & Griffin 1 Henderson .... SE SW SW 27-22-16
Pumped 35 bbl. oil, T.D. 2,507 ft., 5½-in. casing 2,494 ft.

McClenaghan et al 1 Handschumacher ..... NE SW SW 18-21-15
Pumped 50 bbl., T.D. 1,696 ft., 4½-in. casing 1,530 ft., 4,000 gal. acid.

C. L. Oblinger 1 Atlanta Shreveport O. & G. Co. .... NE NE NW 2-20-16
T.D. 996 ft., salt water, 6-in. casing 993 ft.

Texas Co. 9 Raines ..... NE NW NE 27-21-15
Pumped 44 bbl. oil, 20 bbl. salt water, T.D. 1,580 ft., 6⅝-in. casing 1,425 ft., 4,000 gal. acid.

Weaver Perry Oil Co. 1 Pardue .. NW NE NW 33-21-15
Pumped 25 bbl., T.D. 1,588 ft., 7-in. casing 1,472 ft., 4,000 gal. acid.

Wildcat—Caddo Parish

W. G. Ray Drlg. Co. 1 Noel Est. ..... SE 30-21-14
T.D. 8,510 ft., dry.

Athens—Claiborne Parish

Skelly and Sunray 1 Valentine ..... NW NW 31-20-6w
8,000,000 cu. ft. gas, old T.D. 6,507 ft., P.B., T.D. 6,018 ft., 5½-in. casing 6,507 ft., perf. 5,826-34 ft.

Sugar Creek—Claiborne Parish

Union Producing Co. 2 Sims ..... SW NE 32-20-5w
141 bbl. oil, 20/64-in. choke, T.P. 1,525 lb., C.P. 1,650 lb., T.D. 5,832 ft., 5½-in. casing, perf. 5,730-45 ft.

Olla—La Salle Parish

Arkansas Fuel Oil 1-D Kees ..... SE SE 7-10-2e
Pumping 75 bbl., 8 per cent salt water, T.D. 2,410 ft., 7-in. casing 2,410 ft., perf. 2,226-34 ft., upper Central sand.

NORTH LOUISIANA DRILLING REPORT

Bossier Parish

R. L. Reese 1-A Bellevue Land Co. . SW NE SW 27-20-11
First report.

Catahoula Parish

H. L. Hunt 1 Anderson et al ..... SE SE 31-10-6
First report.

Claiborne Parish

F. B. King et al 1 King ..... SE NW 3-20-5w
Drilling 5,372 ft.

Union Producing Co. 1-A T. D. Meadows .... NE 18-21-4
Coring 11,500 ft.

De Soto Parish

J. E. Stack et al 1 Cook ..... NW NE 32-13-4
T.D. 3,000 ft., S.D.

La Salle Parish

J. D. Critchett et al 1 Jones ..... NW NW 41-7-3e
S.D. 2,560 ft.

Lion Oil Ref. Co. 1 Goodpine ..... SW SW 25-9-1e
Drilling 49 ft.

Louark Prod. Co. 1 Tensas Delta ..... SW SE 27-6n-4e
Set surf. casing, drilling 996 ft.

Harry Shulman et al 1 V. B. Whidden .. SW NE 9-9n-3e
Set 10¾-in. casing 224 ft., W.O.C.

Placid 1-B Goodpine ..... NE NW 33-9-2e
First report.

Lincoln Parish

Herman Brown 1 Ark. La. Gas Co. ..... SW NE 11-7-4
Old well drilled deeper, old T.D. 7,023 ft., washing to bottom.

Madison Parish

H. L. Hunt 1 Lancaster ..... 385 ft. W. 340 ft. N most easterly cor., 3-14-12e
Drilling shale 4,738 ft., top Wilcox 2,925 ft.

Natchitoches Parish

J. E. Watts 1 Tanner ..... SW SW NW 18-10-10
T.D. 3,430 ft., cemented back to 3,200 ft.

Sabine Parish

Roy Raines 1 Carter ..... SW NW NW 27-9-11
S.D. 2,377 ft.

Tensas Parish

Pope & Shields 1 Panola Co. ..... SE NW 34-13-12
Drilling shale 567 ft.

Union Parish

Walter B. Reineck 4 Hudson ..... NW SE SE 7-23-1e
10-in. casing 42 ft., S.D. 65 ft.

Tiki Exploration Co. 1 Jones ..... SE SE NW 20-21-3w
Old well drilling deeper.

ARKANSAS COMPLETIONS

Dorcheat—Columbia County

McAlester Fuel Co. 2 K. J. Sayers .... SW SE 10-18-22
178 bbl., 10/64-in. choke, T.P. 2,250 lb., C.P. 2,750 lb., T.D. 8,915 ft., 5½-in. casing 8,915 ft., perf. 8,895-8,915 ft., Smackover lime.

Wildcat—Nevada County

Coker & Grieves 1 Guy Thompson .. SW SE SE 35-10-22
T.D. 1,207 ft., dry.

ARKANSAS DRILLING REPORT

Wildcats—Clark County

W. S. King 1 McKenzie ..... SE SE NW 30-10-19
S.D. 1,336 ft.

W. P. Wilson 1 Hamilton & Mathews .. SW NW 32-10-20
Bailed dry, S.D. 1,572 ft.

Wildcat—Columbia County

Phillips Pet. Co. 1 R. S. Warnock, Jr. .. SW NW 1-17-20
First report.

Wildcat—Miller County

Louark Prod. Co. 1 E. J. Hedrick et al ..... SE NE 27-19s-27w
First report.

(Continued on Page 91)

Outposts at North Rincon and Boyle Showing Good Results

By
F. L. SINGLETON

CORPUS CHRISTI, Feb. 10.—Testing of several outpost wells in proven fields, and the announcement of several important wildcat locations were the featured developments in the Southwest Texas district the past week.

Boyle.—Dean & Hendrickson 1 Garcia, approximately 1 mile northwest of the Boyle field, Starr County, is reported to be flowing gas and an unestimated amount of distillate while testing through a 5/64-in. choke. Casing pressure was 1,200 lb., and tubing pressure 800 lb. The well was drilled to a total depth of 3,476 ft. and after testing dry in the main pay at 3,400-3,500 ft., the hole was plugged back and casing perforated at 2,850-55 ft. In the field proper, Fidelity Oil & Royalty Co. 3-D E. B. Carruth recovered salt water by drill-stem testing at 2,888-94 ft., and the well was abandoned. This well also found the main pay dry, and there is a possibility that production in the discovery area is separated from that of the extension area 1½ miles to the south by faults.

North Rincon.—In the same county, and located southeast of production in the North Rincon field, Arkansas Fuel Oil Co. 1 Martinez, Survey 217, is drilling ahead after a drill-stem test at 4,313-19 ft., recovered 60 ft. of oily mud, 180 ft. of salt water, and tested 3 lb. working pressure. Approximately 2 miles north of production, Transwestern 1 Cameron, A.B.&M. Survey 137, is bottomed at 4,850 ft., and the well is testing through perforated casing at 4,545-64 ft. Northeast of production Sun 2 Coates is drilling in salt-water sand below 4,805 ft. This well showed for a producer the previous week when a 15-minute drill-stem test at 3,628-39 ft. recovered 1,254 ft. of pipe-line oil.

Duval County Wildcats

The bulk of the wildcat activity was centered in Duval County. Locations for three Cockfield tests were announced by Henderson Coquat. Three miles north of Sejita in the J. M. Ynojosa grant, equipment was being moved in for 1 Garcia, while 5 miles east of Sejita, location was made for 1 Delores Garcia in the Santa Cruz de Concepcion grant. The location is on a farmout lease from Standard Oil Co. of Texas, and is about 4,200 ft. southeast of the company's 1 Garcia, a dry hole. Ten miles northwest of San Diego in Share 5 of the San Diego grant, 1 P. G. Garcia was being spudded. This test is being drilled jointly with H. F. Wilcox.

One mile southeast of the Tarancahuas field, Duval County, H. J. Mosser staked location for 1 W. K. Hoffman in the B.S.&F. Survey 121, while northwest of the town of Freer, Graham Brothers are preparing to spud a projected 1,600-ft. test in Block 8, Survey 178. The location is just north of Giblin & Tsemelis 1 Holzapfel, which looms as the discovery well of a shallow field. The latter well is being rigged up to pump after showing considerable oil from sand at 1,089-1,100 ft.

La Salle County.—Drilling was started in La Salle County on William H. Spice 1 D. C. Reed, a projected Wilcox test located in the T. Conlon Survey 124. The location is about 6 miles southwest of the Washburn field, a shallow Wilcox discovery which was opened last year.

Thomaston.—The first dry hole for the Thomaston field, De Witt County, was recorded when Atlantic 1 Zengergle was abandoned at 9,165 ft. after an electrical survey. The well is located in the Charles Lockhart Survey, about 3,900 ft. northeast of the discovery well. Top of the Wilcox was reported at 7,730 ft.

Other Activity

Locations for two wildcats were announced for San Patricio and Refugio counties. Two miles southeast of Taft in Section 71, Coleman Fulton Pasture subdivision, S. E. W. Oil Corp. staked location for 1 Frank Morris, a projected 7,000-ft. test, while 3 miles south of Woodsboro, Refugio County, Coronado Corp. is moving in material for 1-B Birdie Rooke, a projected 5,000-ft. test located in the Aldrete grant.

With approximately 36 drilling operations reported, Nueces County continues to be the most active area in the district. The majority of this development is concentrated in the Agua Dulce and Stratton fields where new sand discoveries of last year open the way for a large-scale drilling program. Approximately 21 operations are reported in the two fields, and production in both areas continues to be extended. The latest completion in the Agua Dulce field is H. H. Howell 2 Schultz, an outpost test which is flowing pipe-line oil while cleaning out from perforated casing at 6,498-6,510 ft. At the close of the week several wells had cored the pay in both fields, and casing was cemented for completion.

SUMMARY OF COMPLETIONS

Lower Gulf Coast District

	No.	Bbl.	Footage
Oil wells: Fields	9	1,015	49,970
Gas wells: Fields	2	.....	10,742
Dry holes: Wildcats	3	.....	15,831
Total	14	.....	76,543

Laredo District

Oil wells: Fields	7	503	17,308
Gas wells: Fields	1	.....	4,190
Dry holes: Fields	1	.....	2,836
Dry holes: Wildcats	3	.....	11,820
Total	12	.....	36,154

San Antonio District

Oil wells: Fields	1	45	2,558
Dry holes: Fields	2	.....	3,974
Dry holes: Wildcats	2	.....	9,459
Total	5	.....	15,991

SOUTHWEST TEXAS COMPLETIONS
LOWER GULF COAST DISTRICT

Goliad County

Wildcat: J. O. Nelson 1 Albrecht, dry, T.D. 3,605 ft.

Jim Wells County

Ben Bolt field: Bridwell 5 Smith, gas well, perf. casing 5,411-14 ft., T.D. 5,474 ft.
Sandia field: O. W. Killam 15 Wade, gas well, perf. casing 3,934-39 ft., T.D. 5,268 ft.
Wade City field: Arkansas 4 Nollkamper, 119 bbl., gas lift, perf. casing 4,809-15 ft., T.D. 4,834 ft.
Rodney DeLange 5 McNeill, 260 bbl., ⅞-in. choke, perf. casing 4,914-19 ft., T.D. 4,925 ft.
Rodney DeLange 17 McNeill, 30 bbl., ⅞-in. choke, perf. casing 4,798-4,800 ft., T.D. 4,940 ft.

Nueces County

Agua Dulce field: Richardson 4 McCoy, 140 bbl., ⅞-in. choke, perf. casing 6,447-65 ft., T.D. 6,971 ft.
South Clara Driscoll field: Magnolia 7 Johnson, 60 bbl., ⅛-in. choke, perf. casing 5,100-02 ft., T.D. 5,103 ft.
Wellington 3 Martin, 97 bbl., ⅛-in. choke, perf. casing 5,247-56 ft., T.D. 5,257 ft.
Stratton field: Southern Minerals 8 Stratton, 66 bbl., 3/32-in. choke, perf. casing 6,674-82 ft., T.D. 6,698 ft.

San Patricio County

East White Point field: Republic Natural Gas Co. 40 Rachal, 141 bbl., ⅛-in. choke, perf. casing 5,571-82 ft. and 5,594-5,602 ft., T.D. 5,911 ft.
Midway field: William Morgan 2 Schmidt, 102 bbl., ⅛-in. choke, perf. casing 5,308-11 ft., T.D. 5,331 ft.
Wildcat: Abbott & Traxler 1 Toland, dry, T.D. 7,013 ft.
Henderson Coquat 1 E. C. Willman, dry, T.D. 5,213 ft.

LAREDO DISTRICT

Duval County

Cedro Hill field: Humble 1-G Duval County Ranch Co., 20 bbl., pumping, T.D. 1,449 ft.
Charamousca field: Magnolia 4 Duval County Ranch Co., 120 bbl., ¼-in. choke, perf. casing 1,543½-45 ft., T.D. 1,548 ft.
Hoffman field: Gilcrease 1-C Salazar, dry, T.D. 2,836 ft.
Wildcat: G. W. Basom 1 Society for Propagation of the Faith, dry, T.D. 1,252 ft.
Henshaw Brothers et al 1 Gonzales, junked, T.D. 6,308 ft.

Hidalgo County

Samfordyce field: Phillips 2 Saenz, gas well, perf. casing 4,058-62 ft., T.D. 4,190 ft.

Jim Hogg County

Colorado field: Humble 22 Atwood, 63 bbl., 3/32-in. choke, T.D. 3,050 ft.
Holbein field: M. L. Massengill 1 Marrs McLean, 45 bbl., pumping, sand 2,798-2,811 ft., T.D.
Kelsey field: Humble 2 Pena, 81 bbl., 5/32-in. choke, T.D. 4,750 ft.
Wildcat: Sun 4 East, dry, T.D. 4,260 ft.

Webb County

Glen field: Transwestern 4 Yeager-Stroman, 112 bbl., ¼-in. choke, sand 2,141-62 ft., T.D.

SAN ANTONIO DISTRICT

Bexar County

Burnett field: Bellinger et al 1 Evans, dry, T.D. 996 ft.

Caldwell County

Tenney Creek field: Wiegand Brothers 1 De Vaughn, dry, T.D. 2,978 ft.

Guadalupe County

Darst Creek field: Texas 6 Dowdy, 45 bbl., 2 per cent sulfur water, pumping, T.D. 2,558 ft.

Lee County

Wildcat: Humble 1 Meide, dry, T.D. 6,221 ft.

Medina County

Wildcat: Lewis Production Co. 1 Blatz, dry, T.D. 3,238½ ft.

SOUTHWEST TEXAS DRILLING REPORT

Aransas County

Humble 1 State, St. Charles Bay prospect, drilling shale and sand 9,872 ft.

Cameron County

Pure 4 Newberry, southwest Port Isabel, drilling shale 7,946 ft.

Duval County

Continental 5-B Driscoll, J. A. Cuellar Sur., top Hockley 3,180 ft., drilling shale 3,731 ft.

La Salle County

W. H. Spice 1 Reed, T. Conlaw Sur. 124, drilling shale 1,520 ft.

Jim Wells County

Lee Johnson et al 1 Singer, Los Presenos de Abajo grant, drilling shale 4,734 ft.

Kenedy County

Skelly 1-388 State, drilling shale 8,966 ft.

Nueces County

Stanolind 1 Shaffer, drilling shale 6,760 ft.
Sun 1 Klosterman, 2 mi. NW of Shield field, rigging up.

Webb County

H. Muckelroy 1 Slator, Block 49, Sec. 93, J. V. Borrego grant, coring 1,237 ft.

Texas Gulf Coast

(Continued from Page 83)

Wildcat: Rowan & Nichols Oil Co. 1 Mattingly, dry, T.D. 8,400 ft.

Chambers County

Anahuac field: Humble 56 Middleton, 735 bbl., ¼-in. choke, top sand 7,194 ft., T.D. 7,224 ft.

Fort Bend County

Thompson field: H. M. Naylor 6 Hampil, 159 bbl., ⅛-in. choke, top sand 7,892 ft., T.D. 7,907 ft.

Galveston County

Caplen field: Sun 1-27 State, 357 bbl., ⅞-in. choke, perf. casing 6,060-90 ft., T.D. 7,795 ft.

Hardin County

Sour Lake field: H. F. Baker 2 Glass, dry, T.D. 1,877 ft.

Harris County

Fairbanks field: Stanolind 12 Jahnke, 148 bbl., ⅛-in. choke, perf. casing 6,834-39 ft., T.D. 6,840 ft.
Dyersdale field: Tilson Co. 1 Haas-Thompson, 92 bbl., 9/64-in. choke, top sand 4,060 ft., T.D. 4,073 ft.

Jackson County

Lolita field: Magnolia 8 Mitchell, 66 bbl., 5/64-in. choke, T.D. 6,936 ft.
West Ranch field: Forest Development Co. 1 Dixon, 277 bbl., ¼-in. choke, perf. casing 5,762-66 ft., T.D. 5,771 ft.
Magnolia 5 Magnolia-Bennett, 579 bbl., ¼-in. choke, T.D. 5,770 ft.
Magnolia 7 Magnolia-Bennett, 579 bbl., ¼-in. choke, perf. casing 5,763-69 ft., T.D. 5,771 ft.
West Ganado field: Pure 1 W. B. Fowler, top Discorbis 4,375 ft., Heterostegina 4,622 ft., Round Marginulina 4,875 ft., Textularia Warreni 6,065 ft., dry, T.D. 6,177 ft.

TEXAS GULF COAST DRILLING REPORT

Jackson County

W. S. Boyle et al 1 Terrell, Wm. Murphy Sur., drilling shale 4,280 ft.
Crosby Drilling Co. 1 Gayle, A. M. Clare Sur., drilling shale 4,350 ft.

Matagorda County

Cities Service Oil Co. 1 Duffy, Blessing area, drilling shale 8,004 ft.
Stanolind 1 Hubner, Blessing area, drilling shale 3,468 ft.

Close Spacing Threat Adding To Complications at Tinsley

By GEORGE WEBER

JACKSON, Miss., Feb. 10.—With wildcatting and new leasing quiet in Mississippi and the Southeast, developments in the Tinsley field were of prime importance during the past week. With production and runs to storage increasing, development in the field is now faced with the possibility of close well spacing. New refining outlets are being promoted locally, but will not be effective for at least 3 months.

Tinsley

Mississippi's principal field has reached the 5,000,000-bbl. production mark, with reserve estimates increasing considerably with each extension of Woodruff sand production on the southeast. In addition to the important development to the southeast, drilling has begun on a west edge test, offsetting acreage with some of the thickest Woodruff section in the field to date.

Drilling has proceeded on an orderly 40-acre spacing pattern, which is considered sufficient to drain the producing formations. Even with wells on this pattern, the lack of crude outlet has caused Tinsley oil to be stored in large quantities. The field is probably the largest in this country without a pipe-line outlet. An aggravation of the current situation looms as a result of an attitude of some members of the state Oil and Gas Board, favoring closer spacing.

At a hearing held last week, J. F. Barbour, Jr., of Yazoo City, applied for permission to drill on a 2.33-acre tract in 22-10-2. Offers have been made for unitization of this and other small tracts in the field, with larger units for continuation of the 40-acre pattern, and this action may serve to continue the conservative method of developing the field. The hearing was expected to result in a decision, but action was postponed to February 20. The possibility of a spacing breakdown at Tinsley is considered serious by all operators ir. the field.

In addition to the possibility of a refinery to be moved from East Texas to Jackson by Mid-South Refining Co., a second and more profitable development was announced this week by Paluxy Asphalt Co. of Dallas, Tex. The company will have on stream by May 1 a 3,500-bbl. cracking plant to be erected at Crupp Siding, between Yazoo City and Valley, on the Illinois Central Railroad. The company is reported to have a contract with Union Producing Co. to furnish them with 2,500 bbl. of Tinsley crude daily.

Leasing and Wildcatting

More acreage was turned back last week as geophysical exploration failed to show favorable structures on tracts held under shooting options. Exchange Oil Co. has released over 144,000 acres on this basis, located in Copiah, Jefferson Davis, Lawrence, Marion, Simpson, Walthall and other counties. Some of the largest tracts taken in Alabama on the same type of option were released recently, when Amerada Petroleum Corp. reportedly turned back 120,000 acres of Tennessee Coal & Iron property, and 80,000 acres of the Republic Steel Corp., in Fayette, Jefferson, Tuscaloosa and Walker counties.

On the other hand, new leasing is taking place in Jones and Lauderdale counties, and a new 4,500-ft. test is expected shortly in Kemper County.

In Alabama, Shaw, Johnson & Thompson 1 Birmingham Trust & Saving Co., the first of several planned tests in Limestone County, was abandoned at 445 ft. The operators hold a large block of 180,000 acres in Limestone County, and plan to drill more shallow tests, and possibly one deep, 5,000-ft., test. Other Alabama operations are seen in a proposed Ordovician test in Walker County, and new leasing and a proposed wildcat in Winston County.

Geophysical activity continues slow, with 21 crews working in Mississippi, and eight in Alabama, most shooting centering in the southern sections of the two states. Core drilling continues in Covington County.

SUMMARY OF COMPLETIONS

Mississippi

	No.	Bbl.	Footage
Oil wells	5	4,083	24,533
Dry holes	1	.....	1,845
Total	6	.....	26,378

Alabama

Dry holes	1	.....	445

MISSISSIPPI COMPLETIONS

Wildcat—Tishomingo County

Mellen & Gear 1 E. K. Wood, SE SE SE 21-4s-11e, T.D. 1,845 ft., Knox dolomite 1,547 ft., dry.

Tinsley—Yazoo County

Hassie Hunt 1 Stutts, NW NE 30-10-2, 1,212 bbl., ½-in. choke, T.P. 160 lb., C.P. 100 lb., T.D. 5,028 ft., Woodruff sand 4,982-5,028 ft., 7-in. casing 4,977 ft.

Love Pet. Co. 1 Stutts, NW NE 30-10-2, 1,620 bbl., ½-in. choke, T.P. 220 lb., T.D. 5,005 ft., 6-in. casing 4,918 ft., Woodruff section 4,920-5,005 ft., break 4,964-73 ft.

Slick-Urschel Oil Co. 8 Slick est., SE SE 35-11-3, pumped 408 bbl., T.D. 4,777 ft., Woodruff sand 4,746-69 ft., 5½-in. casing 4,745 ft.

Union 1 Childress-Guyness unit, SW SW 24-10-3, 300 bbl., ¼-in. choke, T.P. 75 lb., C.P. 135 lb., Woodruff sand 4,640-68 ft., break 4,646-49 ft., T.D. 4,675 ft., 7-in. casing 4,675 ft., perf. 4,638-68 ft.

Union Producing Co. 5 Harris, SE NE 25-10-3, 543 bbl., ⅜-in. choke, T.P. 100 lb., C.P. 125 lb., T.D. 5,048 ft.

MISSISSIPPI DRILLING REPORT

Clarke County

Walsingham & Earles 1 School Land, SW SW NE 16-4n-15e, fishing 3,100 ft.

Montgomery County

E. R. Henderson 1 Columbian Mutual Life Ins. Co., 36-21n-5e, old well drilling deeper, coring 4,456 ft.

Sharkey County

British American 1 F. B. Houston est., N½ NE SW 23-11n-7w, S.D. 1,315 ft., new hole, old T.D. 4,027 ft.

Stone County

H. I. Morgan et al 2 Dantzler Lumber Co., NE SE 4-4s-10w, rigging up.

Warren County

W. O. Allen 1 J. W. Culley, SE NW 6-13n-3e, workover, old T.D. 4,490 ft., washed to 2,500 ft., cemented at 2,480 ft., to sidetrack and core Wilcox.

ALABAMA COMPLETION

Wildcat—Limestone County

Shaw, Johnson & Thompson 1 Birmingham Trust & Savings Co., NW NE NW 15-2s-4w, T.D. 445 ft., abandoned.

Permian Basin, Panhandle

(Continued from Page 66)

Pinal Dome Oil 1 Michigan Oil fee, NW SW Sec. 15, Blk. 26-C, P.S.L. Sur., 5,300-ft. test, location.

Pecos County

Culbertson & Irwin 1 R. G. Heiner, NE NE Sec. 589, G.C.&S.F. Sur., Ordovician wildcat, show oil in upper Ellenburger lime, show oil 5,382-90 ft. and 5,500-10 ft., treated 1,500 gal. and 8,000 gal. acid, retreated 2,000 gal. acid, swabbed out oil load and showed water, still testing.

Stanolind 1 Conry-Davis, SW SW SW Sec. 31, Blk. 9, H.&G.N. Sur., Ordovician test in Abell area, first report.

Schleicher County

Harold B. Opp 1 Jackson, Sec. 41, Blk. LL, T.C. Sur., drilling 6,164 ft.

Reeves County

C. A. Kitsos 1 A. B. Burchard, SW Sec. 7, Blk. 58, P.S.L. Sur., Delaware test, spudded and S.D., drilling water well.

Roy Johnson 1 Perkins, Sec. 18, Blk. 7-C, P.S.L. Sur., T.D. 1,925 ft., last report.

J. T. Pemberton 1 fee, NE NE Sec. 2, Blk. 55, Twp. 7, T.&P. Sur., first report, Delaware lime test, 7,500-ft., prepart to start.

Ward County

Gulf 6 Wristen 1,997 ft. from SE and 1,989 ft. from NE lines, Sec. 18, Blk. 5, H.&T.C. Sur., deep Silurian test, drilling 2,680 ft.

Roeser & Pendleton, Inc., and Merry Bros. & Perini 1 Bird Hayes, 467 ft. from SE and SW lines, Sec. 164, Blk. 34, H.&T.C. Sur., ¾ mi. N of discovery gas well, contract depth 5,200 ft., to Delaware sand, 10-in. 1,072 ft., top sat. in Delaware sand 5,089 ft., cored broken sat. at 5,169 ft., 7-in. at 4,912 ft., T.D. 5,189 ft., prep. drill plug.

J. E. Fitzpatrick 1 T. B. Pruit, SW SW Sec. 23, Blk. 1, W.&N.W. Sur., S.D.R. 140 ft.

TEXAS PANHANDLE

AMARILLO, Tex., Feb. 10.—Completions in the Texas Panhandle fields reached a new low for the year with only four finals reported for the 7-day period, one being in Gray County and three in Hutchinson County.

New locations for the week offered indications of increased activity for weeks to come, however, as a total of 14 first reports were listed. Of the total six were in Gray County, seven in Hutchinson County, and one in Wheeler County.

TEXAS PANHANDLE COMPLETIONS

(24-hour pumping gages)

Gray County

Stanolind-Magnolia 9 Saunders, 95 bbl., 2,950-3,087 ft., 388-qt. shot.

Hutchinson County

Huber Corp. 11 Weatherly, 1,832 bbl., gas lift, 2,955-3,010 ft.

Shell 12 Harvey "B," 352 bbl., 3,017-75 ft., 175-qt. shot.

Parton & Holt 4 Whittenburg, 105 bbl., 3,003-75 ft., 450-qt. shot.

SOUTHEAST NEW MEXICO

HOBBS, N. M., Feb. 10.—A large 110-bbl. per hour well in the Eaves field of Lea County the past week and a new wildcat location in Chaves County were the most important developments of the week.

The wildcat is Frank Montgomery 1-B Purcell, 1,980 ft. from the north and 330 ft. from the west lines of 13-11-26. The test has already been started, the 10-in. casing having been cemented at 210 ft. below which point it was last reported preparing to drill. The wildcat is in an area where several wildcats have encountered favorable oil showings, however, none sufficient for commercial production.

The district's large oil well was Continental 1 Eaves, SW NE 19-26-37. On official gage the well flowed 110 bbl. hourly for 2 hours through ¾-in. choke on tubing landed at 3,121 ft., 5 ft. off bottom. It was acidized with 2,000 gal.

There were a total of seven completions for the district the past week, four being in Eddy County and three in Lea County. There were two failures in Eddy County, one old well drilled deeper and one small oil completion in the Dayton field, while in Lea County oil wells were completed in the Eaves field and the Maljamar field and a gasser in Arrowhead.

SOUTHEAST NEW MEXICO COMPLETIONS

Eddy County

Wildcat: A. & M. Pet. 2 State, NW NW SE 15-21-27, dry at 582 ft.

J. W. Jones 1 Etz (old well drilled deeper), C SE SE 13-16-30, old T.D. 3,850 ft., cleaned out and shot 100 qt. from 3,812-26 ft. and with 100 qt. from 3,200-20 ft., made 50 bbl. daily.

Dayton field: Jones-Yates-Nix 1 Crozier, SE NE NW 26-18-26, made 5 bbl. daily, 945-1,055 ft., P.B. from 1,160 ft.

Loco Hills field: Archer-Jones 1 Massie, NW NW NE 20-18-29, temporarily quit at 2,910 ft., P.B. from 3,350 ft.

Lea County

Eaves field: Continental 1 Eaves, SW SW NE 19-26-37, 110 bbl. per hr. for 2 hr., 2,000 gal. acid, 3,113-26 ft.

Maljamar field: Green Bay Oil 3-A Mitchell, C NE NE 7-17-32, 25 bbl. daily, 300-qt. shot, 3,690-3,970 ft.

Arrowhead field: Gulf 8 W. A. Ramsey, C NW SE 35-21-36, 1,200,000 cu. ft. gas daily, 3,835-70 ft.

SOUTHEAST NEW MEXICO WILDCAT REPORT

Chaves County

L. E. Elliott 1 State ..... NW NE 16-11-31
Drilling 410 ft.

Roxana Oil 1 Maull ..... NE NW 11-12-25
S.D. 460 ft.

A. F. Pierce 1 Franks ..... SE NW NW 17-9-25
T.D. 990 ft., P.B. 887 ft., shot 40 qt. 864-87 ft., testing.

Helmes-Martin 1 Stephens ..... C NW NE 22-15-29
Old well drilling deeper, T.D. 3,210 ft.

H. Steinberger 1 Headley ..... NW SW 26-14s-29e
T.D. 3,405 ft., sulfur water 3,400-05 ft.

R. I. Wilson 1 L. B. Brown ..... C NW SW 29-11-23
Drilling 500 ft.

Eddy County

G. M. Cone 1 Hare ..... NW NW NE 14-16-28
Old well drilling deeper, T.D. 1,830 ft., showing est. 250,000 cu. ft. daily, testing.

Mac T. Anderson 1 Brainard ..... NE NE 28-18-27
Drilling 2,205 ft.

Jack Harris 1 Josey ..... SW SE 19-20-23
T.D. 643 ft.

Jones & Yates 1 Everest ..... NE SE 15-18-26
270-qt: shot 1,934-84 ft., and 670-qt. shot 1,485-1,710 ft., casing collapsed, squeezed off casing, S.D.

Fulton 1 Johnson ..... NW SE 22-19-27
T.D. 1,849 ft., P.B. 1,645 ft., 230-qt. shot 1,752-1,645 ft., filled 400 ft. with oil and water after being cleaned out, 5⅛-in. casing at 1,442 ft., swabbed 27 bbl. oil, 5 hr., pumped 20 bbl. daily, still testing.

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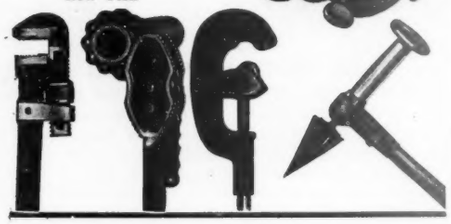

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PETROLEOS MEXICANOS,
M. Sánchez Cuen,
Assistant General Manager.

Completions at Lowest Level In Four Years in Basin

By OTTO C. PRESSPRICH

SAGINAW, Mich., Feb. 10.—Allegan and Ottawa counties accounted for nearly two-thirds of the Michigan oil and gas drilling completions last week, but little of interest resulted from the development. With completions at the lowest level since 1937, there was a slight pickup as the state Conservation Department announced that during the week 19 permits for drilling had been issued, bringing the number approved this year to 85.

Marking Central Michigan activity was completion of a natural-gas well in Broomfield Township, Isabella County, by Guy Obenauer. The well, completed for 2,100,000 cu. ft. a day in Michigan stray at 1,337 ft., appeared to extend the Broomfield to the southeast.

Sun Oil Co. kept pushing 1 McIntosh to record depth for Clare County development. The test, deepest ever in the county, was reported below 5,150 ft. Also deepening is American Drilling Co. 1 Cornwell ranch wildcat in Arthur Township, now near 4,300 ft. Neither the McIntosh test, in Hamilton, nor the Cornwell have shown oil. Pure Oil Co. plugged 1 State-Freeman at 4,038 ft. The test was of semiwildcat nature in Freeman Township. Pure's 1 Swindlehurst in Winterfield, plugged back from a water zone and acidized, was reported good for 125 bbl. a day.

A half-dozen more tests are scheduled for the revived Overisel section of Allegan County as a result of the McClanahan development in Section 11 late last year. In Roscommon Township, Roscommon County, Eugene Hilliard 1 State was to be drilled deeper. The test showed oil at 4,047 ft., but testing was delayed to set casing.

Pipe was being removed piecemeal from Gulf Refining Co.'s Bateson deep test in Monitor, Bay County, about 4,000 ft. having been taken from the hole, and fishing started for the rest, preliminary to resumption of drilling in the state's deepest test. Chapman Oil Co. has started a new test on the Rechsteiner lease in Monitor Section 3, where the first well is pumping 100 bbl. a day. Three miles northwest of producing fields, Joseph Hirschfield of Bay City is starting a Section 20, Kawkawlin Township, test. Pure Oil Co. expected to complete two Dundee tests in the Arenac Adams field this week. In Eaton County, Rex Oil & Gas Co. 1 Hultz wildcat, Section 20, Benton Township, was halted at 2,260 ft. because of water. It may be deepened to test Dundee.

Division of drilling permits granted last week was: To Allegan County, five; Alcona, one; Bay, two; Clare, two; Gladwin, one; Gratiot, one; Huron, one; Montcalm, two; Ottawa, two; Kent, two.

A Conservation Department survey revealed the state now has 243 more producing oil wells and 25 more gas wells than a year ago; the Geological Division reported oil-producing wells now number about 3,000, while there are 505 natural-gas wells.

SUMMARY OF COMPLETIONS

	No.	Bbl.	Footage
Oil wells: Allegan	3	150	4,335
Clare	1	125	3,777
Ottawa	3	410	5,584
Gas wells: Isabella	1	*2.10	1,337
Ottawa	1	78	1,275
Dry holes: Allegan	2	.....	3,905
Ottawa	2	.....	3,809
Other	3	.....	7,169
Location abandoned	1	.....	.....
Total	17	.....	31,191

*Million cu. ft.

MICHIGAN COMPLETIONS

Allegan County

Ganges Township: Guy Wray 1 Symmons, NW SW NE 33-2n-16w, dry, T.D. 1,238 ft.

Hopkins Township: Lang & Lewis 1 Atwater, NE SE SW 14-3n-12w, dry, T.D. 1,667 ft.

Salem Township: Michigan Devonian Petroleum Co. 1 Smith, SE SE NW 15-4n-13w, 25 bbl., acid, T.D. 1,599 ft.

Trowbridge Township: W. Spencer Cook 2 Morgan, SW SW NE 29-1n-13w, 25 bbl., acid, T.D. 1,378 ft.

H. C. Williams 1 Wilson, SE NE NW 29-1n-13w, 100 bbl. acid, T.D. 1,358 ft.

Barry County

Carlton Township: Crown Development Co. 1 Henney, NW NE NE 4-4n-8w, location abandoned.

Clare County

Freeman Township: Pure Oil Co. 1-A State, N½ SW NE 1-18n-6w, dry, T.D. 4,038 ft.

Winterfield Township: Pure Oil Co. 1 Swindlehurst, E½ NE NW 32-20n-6w, 125 bbl., acid, T.D. 3,777 ft.

Isabella County

Broomfield Township: G. M. Obenauer 2 Lovell, SE SE NW 14-14n-6w, natural gas, 2,100,000 cu. ft., T.D. 1,337 ft.

Muskegon County

Cedar Creek Township: R. C. Lentz 1 Cihak, SW SE NW 32-11n-15w, dry, T.D. 1,902 ft.

Ottawa County

Allendale Township: Grimes & Son 1 Kulikamp, SE SE NE 9-7n-14w, dry, T.D. 1,801 ft.

Tallmadge Township: Bells-Marks 1 Tanis, SW SW SE 1-6n-13w, 20 bbl., acid, T.D. 1,885 ft.

J. C. Newell 1 Bronkema, NW NE NW Sec. 23, 350 bbl., acid, T.D. 1,883 ft.

Strom-Wagner 4 Zawadski, NE NW NW Sec. 34, 40 bbl., acid, T.D. 1,816 ft.

Wright Township: West Michigan Consumers 1 Slaughter, C W½ 19-8n-13w, natural gas, 780,000 cu. ft., T.D. 1,275 ft.

Southwest Development Co. 1 Purdy, SE SE SE Sec. 22, dry, T.D. 2,008 ft.

Van Buren County

Columbia Township: J. H. Fitchett 2 Baker, S½ SW SE 12-1s-15w, dry, T.D. 1,229 ft.

Oklahoma Fields

(Continued from Page 77)

Woodford 4,763 ft., Viola 4,795 ft., drilling 4,819 ft.

Okfuskee County

Burke-Greis 1 Mullins ..... SW SE SE 5-10-10
8-in. 2,743 ft., sand 1,909-25 ft., show gas, sand 2,013-75 ft. gas increased, Booch 2,710-40 ft., show gas and water, Gilcrease 2,930 ft., drilling 2,943 ft.

Carte 1 Bucco ..... NE NE SE 20-10-12
S.D. 2,200 ft.

K.G.F.F. 1 Camp ..... SW SW SW 6-11-9
First report.

Oklahoma County

Clyde Dorr et al 1 Riley ..... NE NE SE 34-13-1
First report.

Osage County

Superior 1 Osage ..... NW SE SW 23-22-8
First report.

Pawnee County

Dave Malernee 1-A Lucas ..... NW SE NW 28-21-8
Running 10-in. at 550 ft. T.D.

Payne County

H. & H. Oil 1 Linsenmeyer ..... SE SE SW 3-18-4
T.D. 3,956 ft., ran pipe to 400 ft. off bottom and stuck, fishing casing.

Pontotoc County

Alma 1 Norris ..... NE NW SW 22-4-4
Oil Creek 2,460 ft., drilling 2,710 ft.

Pottawatomie County

Grisso & Eason 1 Rayster ..... SW NW NW 33-6-3e
Belle City 2,459 ft., Hogshooter 2,804 ft., Layton 2,871 ft., Checkerboard 3,035 ft., cored fine sand stained and odor 2,873-91 ft., drill-stem test 2,868-91 ft., open 15 min., show gas immediately, est. 8,000,000 cu. ft., S.I., R.P. 850 lb., drilling 3,490 ft.

O'Conner & Townsend 2 Lynn ..... NE NE NW 28-6-4
10-in. casing 110 ft., drilling 2,310 ft.

Kerlyn 1 Cherry ..... SE NE NW 32-8-5
T.D. 4,330 ft., pumped 53⅓ bbl. in 12 hr. plus 8 per cent water, testing.

Seminole County

Alma 1 Borden ..... NE SE NW 4-8-8
S.D. 3,200 ft. after testing Cromwell.

Weldon Hall 1-A Jackson (twin) ..... N½ NE SE 14-7-7
Shot 3,168-92 ft., swabbed 3 bbl. an hr., S.D., to pu. on pump.

Stephens County

Gulf 1 Krieger ..... E½ NE SW 3-2-5w
Drilling 4,890 ft. shale.

Tulsa County

W. F. Eppler 1-A McBirney ..... SW SW 12-18-13
S.D. 1,392 ft.

New Sands Found in Old Fields Increase Coastal Reserves

By F. L. SINGLETON

NEW ORLEANS, La., Feb. 10.—New sand discoveries in proven fields continue to enlarge the potentiality of the Louisiana Gulf Coast district. The latest strikes were made in the Schooner Bayou field, Vermilion Parish and at the Potash dome, Plaquemines Parish.

Schooner Bayou.—The third productive horizon in Schooner Bayou, Vermilion Parish, was found by the completion of Union Oil Co. of California Co. 1-B Vermilion Parish School Land, an east offset to the discovery well. After showing for a gas well in the discovery pay at 10,512-15 ft., the hole was plugged back to 9,912 ft., and the well was completed through perforated casing at 9,863-74 ft. and 9,884-90 ft. for an initial production of 405 bbl. of 39-gravity oil per day through a ⅞-in. choke. Tubing pressure was 1,150 lb. This is the second new sand to be opened on the structure within 2 weeks as the same company's 4 Louisiana Land & Fur Co., 1½ miles to the northwest, reported the previous week as a possible new sand discovery, was recompleted through perforated casing at 7,342-55 ft. for an initial production of 211 bbl. of 37.1-gravity oil per day through a 5/32-in. choke. Tubing pressure was 1,400 lb., and casing pressure 2,375 lb.

This field was opened the past year by the company's 1 White, completed as a crude producer from sand below 10,500 ft., and the above wells are the only other tests drilled to date. This is the first production to be opened in the Gulf Coast district by the company and a steady development program is anticipated.

Potash dome.—Production from a third deep sand was opened on the Potash dome, Plaquemines Parish, with the completion of Humble 48 Orleans Levee Board. The well was drilled to a total depth of 8,559 ft., and was completed through perforated casing at 8,485-8,550 ft. for an initial production of 7 bbl. of 28-gravity oil per hour flowing through a ⅛-in. choke. Tubing pressure was 1,300 lb. Production was originally opened on this dome in the cap rock at intervals from 900 to 1,100 ft., and flank drilling later established prolific production from deeper sands at intervals from 7,900-8,100 ft. The present well is situated in 13-18s-15e, just southwest of 37 Orleans Levee District.

Section 28 dome.—On the north flank of the Section 28 dome, St. Martin Parish, Superior Oil Co. of California was preparing to test 1-B St. Martin which is bottomed at 9,501 ft. Side-wall cores at 9,152-65 ft., 9,340-60 ft., 9,400-08 ft., 9,445-50 ft., and 9,456-72 ft. recovered sand with a good oil odor and the well is expected to open the first crude production on the structure. The well is located in 20-9s-7e, about 830 ft. north of the company's 1 Stuart, a gas-distillate producer which was completed the past year in sand at 9,300 ft., although the same type of production was also shown in another sand section at 9,100 ft.

Westwego.—Titanic Oil Co. 1 Marrero Land & Development Co., the discovery well of the Westwego area, just west of New Orleans, Jefferson Parish, continues to test, and on a recent gage the well flowed 400 bbl. of fluid per day of which 240 bbl. was oil and 160 bbl. wash water, salt water and mud. The well was tested through 9/64 to 12/64-in. chokes and tubing pressure was 1,400 lb. and casing pressure 1,800 lb. That surface sands in this area might have been charged by the blowout of the discovery well was more or less indicated by the blowout of Reese B. Carter 1 Cravens ¼ mile east of the discovery well. While pulling conductor pipe after cementing surface casing at 2,559 ft., gas began to show around the surface casing and this became ignited resulting in damage to the draw works, and the well is now shut down to change draw works.

SUMMARY OF COMPLETIONS

	No.	Bbl.	Footage
Oil wells: Fields	11	3,048	82,373
Dry holes: Fields	5	.....	30,621
Total	16	.....	112,994

St. Gabriel Prospect

In Iberville Parish and located on the St. Gabriel prospect, Titanic Oil Co. 1 Natalbany Lumber Co. continues to drill ahead below 8,784 ft. with no additional showings reported. An electrical survey and side-wall cores showed sand with a good oil odor the previous week at intervals from 6,880-7,794 ft.

Woodlawn.—A half-mile east extension to the Woodlawn field, Jefferson Davis Parish, was recorded with the completion of Union Sulphur Co. 2 Trimble which flowed at the rate of 250 bbl. of oil per day through a 9/64-in. choke from sand at 8,048-50 ft.

South China.—Another dry hole was marked up for the South China field, Jefferson Davis Parish, with the abandonment of Union Sulphur Co. 1 Latrielle at 9,965 ft. The well is located as a south offset to the discovery well, 1-A Calcasieu National Bank which was completed last year as a gas-distillate producer.

West Bay.—Tide Water Associated Oil Co. is reported to be starting a new operation in the West Bay field, Plaquemines Parish, where location was recently made for 1 State, located northwest of the discovery well, completed at the close of last year by Gulf Refining Co. The latter company was setting 9⅝-in. casing at 7,200 ft. in 2-E Buras Levee District when the well blew in and caught fire destroying the derrick and rig.

North Crowley.—Location for an important outpost test was announced for the North Crowley field, Acadia Parish, by Humble Oil & Refining Co. The well is 1 Ben F. Link, located about 1 mile northeast of production in 26-8s-1e.

Bayou Pigeon.—Another producer was apparently assured the Bayou Pigeon field, Iberia Parish, as Plymouth 1 Tilley, several hundred feet east of production recovered 9 bbl. of oil and tested 35 lb. working pressure on a drill-stem test at 8,126-56 ft. At the close of the week, 4 ft. of sand was cored at 8,156-61 ft., and casing was expected to be cemented for completion after drilling to a total depth of 8,244 ft.

Bayou Blue.—In the Bayou Blue field, Iberville Parish, Superior Oil Co. was scheduled to test a deep sand logged in 1 Grief Brothers Cooperative Co. located on the southwest flank. The hole is bottomed at 9,778 ft., and casing was cemented to test sand at 9,650-62 ft. Should the well be successfully completed it would open the deepest producing sand for the structure.

Grand Bay.—In the Grand Bay field, Plaquemines Parish, Gulf Refining Co. is reported to have cemented casing preparatory to testing a deep sand logged in 7-A Grand Prairie Levee District. The hole is bottomed at 12,034 ft. and sand with an oil show is reported to have been cored at 12,023-25 ft. Additional sands in the regular field pay were reported logged at intervals from 7,100-8,400 ft.

LOUISIANA GULF COAST COMPLETIONS

Ascension Parish

Darrow field: Humble 34-B Community, dry, T.D. 4,617 ft.

Calcasieu Parish

Sulphur field: Union Sulphur Co. 5 Ulrich, dry, T.D. 7,312 ft.

Cameron Parish

Chalkley field: Shell 3 Sweet Lake Land & Oil Co., 337 bbl., 10/64-in. choke, sand 8,784-8,818 ft., 8,858-86 ft., T.D. 8,896 ft.

Iberville Parish

Bayou Blue field: Markley & Crosby Drilling Co. 7 Baiste Cooperage & Lbr. Co., 150 bbl., pumping, perf. casing 1,745-55 ft., T.D. 3,395 ft.

Bayou de Glaise field: Humble 3-B Wilberts & Sons, dry, T.D. 9,573 ft.

East Baton Rouge Parish

University field: Sugarfield Oil Co. 3 Reinken, 153 bbl., 10/64-in. choke, top sand 6,792 ft., T.D. 6,808 ft.

Jefferson Parish

Delta Farms field: Texas 2 State, 481 bbl., ⅞-in. choke, perf. casing 8,925-42 ft., T.D. 9,167 ft.

Lafitte field: Texas 9-A Madison Realty Co., 791 bbl., ¼-in. choke, perf. casing 9,430-62 ft., T.D. 10,162 ft.

La Fourche Parish

Golden Meadows field: Superfine Oil Syndicate 1 Daize Cheramie, 177 bbl., 10/64-in. choke, perf. casing 5,432-40 ft., T.D. 5,486 ft.

La Fourche Crossing field: Mikton Oil Co. 5 Martinez, 63 bbl., 16/64-in. choke, perf. casing 10,100-08 ft., 10,112-15 ft., T.D. 10,894 ft.

Valentine field: Mabro 1 Dousson, 53 bbl. distillate, 13/64-in. choke, T.D. 8,065 ft.

Plaquemines Parish

Quarantine Bay field: Gulf 21 QQ State, 504 bbl., ⅞-in. choke, perf. casing 8,544-58 ft., T.D. 8,559 ft.

Rapides Parish

Cheneyville field: Amerada 18 Weil, 146 bbl., ⅞-in. choke, perf. casing 5,680-85 ft., T.D. 5,716 ft.

St. Martin Parish

Anse La Butte field: Glassell & Glassell 1 Judice, dry, T.D. 4,385 ft.

Glassell & Glassell 2 Numa Patin, dry, T.D. 4,734 ft.

Stanolind 2 Bergeron, 192 bbl., 5/32-in. choke, perf. casing 4,742-62 ft., T.D. 4,775 ft.

LOUISIANA GULF COAST DRILLING REPORT

Calcasieu Parish

Gulf 1 Calcasieu National Bank, Hayes prospect, 18-11s-5w, drilling sandy shale and lime 6,997 ft.

Cameron Parish

Lisbon-Iberia Oil Corp. 1 Calcasieu National Bank, Lowry prospect, 19-12s-4w, drilling sandy shale 10,612 ft.

Evangeline Parish

Bering Oil Co. 1 Fruge, North Basile prospect, 10-6s-2w, drilling shale 1,970 ft.

Iberia Parish

Gulf 1 Petit Anse Co., Avery Island dome, 59-13s-6e, drilling shale 8,243 ft.

Plaquemines Parish

Phillips 1 State-Bastian Bay prospect, 48-20s-29e, drilling shale 5,356 ft.

Texas 1 State-Octave Pass prospect, 32-20s-20e, drilling shale 6,434 ft.

Rapides Parish

Lynes & Douglas 1 J. B. Phillips, 15-1s-2w, T.D. 1,500 ft., running 10¾-in. casing.

St. Martin Parish

Shell 1 State-Duck Bay prospect, 1-15s-11e, drilling shale 3,542 ft.

Shell 3 Iberville Land Co., Happytown field, 87-7s-8e, drilling shale and sand 9,812 ft.

St. Mary Parish

Humble 1 Miami Corp., 15-15s-6e, drilling shale 6,356 ft.

St. Tammany Parish

W. T. Burton 5 State-Lake Ponchartrain, T.D. 6,980 ft., lime, running 7-in. casing.

La.-Ark. Fields

(Continued from Page 87)

Wildcat—Faulkner County

Cato Oil Co. 1 R. R. Harrell ..... SE SW 35-4n-12w
Old well drilled deeper.

Ouachita County

Berry Asphalt Co. 1 G. S. Martin .... SW NE SW 17-14-19
S.D. 2,356 ft.

Frank J. Hughes 1 Rath & Cartier, Inc. ..... NE SW NE 35-13-18
T.D. 1,173 ft., S.D., repair pump.

Prairie County

Hazen Oil Co. 1 Fidelity Mutual Life Ins. Co. ..... NE SW 16-2n-6w
S.D. 700 ft.

Sevier County

Gramp Oil Co. 2 F. Phillips ..... SW SW SW 26-9-30
Set 7-in. casing 725 ft., drilling 647 ft.

St. Francis County

U. S. Oil Corp. 1 Wilford ..... NE SE NE 29-4n-1w
T.D. 2,210 ft., cored 6-in. soft slightly porous sand, oil stain 2,261-65 ft., preparing to set 7-in. casing.

EAST TEXAS BORDER DRILLING REPORT

Bowie County

A. L. Willis et al H. L. Taylor, John McGuire Sur., drilling 2,965 ft.

Marion County

J. D. Parsons et al 1 Hook, Albright Sur., S.D. 5,006 ft.

A. J. Vestal et al 1 C. Moseley, Daniel Lane Sur., Spudded.

P. L. Withers et al 1 T. G. Allen, Robert Potter Sur., T.D. 2,350 ft., report show oil.

Henry King et al 1 Bailey, R. Maxwell Sur., first report.

R. S. Kirby 1 Bergerson, Burtin Sur., first report.

Manning et al 1 Cray, L. Needham Sur., first report.

Sabine County

Sturm & Womack 1-A Keith, L. Grace Sur., no report, last reported drilling 2,445 ft.

San Augustine County

B. F. Findley et al 1 G. W. Allen, A. N. Davis Sur., S.D. 46 ft.

Roper & Todd 1 Long Bell, Hyden Sur., T.D. 100 ft., set 10-in. casing 70 ft.

Shelby County

Cougar Oil Co. 1 Jones, John Latham Sur., derrick.

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CANADIAN FIELDS

Alberta's 1941 Production Is Expected to Pass 1940 Peak

By VICTOR LAURISTON

CHATHAM, Ont., Feb. 10.—Revised official figures place crude and naphtha production from all Alberta fields in 1940 at 8,493,237 bbl. compared with 7,594,411 bbl. in 1939. Comparative figures are:

Field—	Barrels 1940	1939
Turner Valley limestone crude	8,097,414	7,180,161
Turner Valley gas wells	75,602	70,650
Turner Valley natural gasoline	272,202	296,787
Turner Valley shallow crude	7309	8,431
Red Coulee light crude	12,177	13,022
Wainwright heavy crude	7,527	11,624
Dina-Ribstone heavy crude	4,746	4,317
Lloydminster heavy crude	1,648	548
Vermilion heavy crude	10,817	.....
Moose Dome light crude	361	2,074
Del Bonita light crude	3,444	2,365
Taber medium crude	.....	3,745
Steveville medium crude	.....	687

December crude production from all Alberta fields totaled 722,824 bbl., compared with 728,746 bbl. in November. The decrease from November was due almost entirely to the stabilization program in the Turner Valley crude area.

Natural-gas production from all Alberta fields in December totaled 5,453,467,000 cu. ft., compared with 5,780,169,000 cu. ft. in November, and 4,352,168,000 cu. ft. in December 1939.

The value of the Alberta crude and naphtha output in 1940 is estimated at $10,504,669, compared with $9,289,580 the previous year.

On the basis of the recent trend in Turner Valley crude allowables minimum Alberta production for the first 6 months of 1941 is expected to reach 4,690,155 bbl., an increase of approximately one-third over the corresponding period of 1940; and, with new completions and development of the Steveville field and other outside areas, the Alberta output for 1941 may for the first time reach 10,000,000 bbl.

February Quotas Increased

Aggregate allowable for Turner Valley crude wells for February will approximate 26,000 bbl. a day, an increase of 1,000 bbl. over January. The new quota will comprise 22,000 bbl. a day regular field allowable and 4,000 bbl. daily war-emergency production. The February field quota includes a provisional allotment for four new completions still testing of 1,100 bbl. a day. This brings the total of crude producers to 135.

Turner Valley Completions

North Turner Valley: Home Oil 1, LSD 8, 33-20-3w5, finished at 8,010 ft., is testing for allowable after gun perforating and acidizing the lower zone of the Madison. Home Oil 6, LSD 8, 28-20-3w5, bottoming at 8,446 ft., has acidized the lower lime and is testing.

West Central field: Royalite Oil 53, LSD 4, 19-19-2w5, has finished at 7,668 ft., 445 ft. in the Madison, and is acidizing and testing, with the formation proving tight. This is the first completion in Section 19. Royalite 54, LSD 1, 7-19-2w5, finished at 7,367 ft., is testing for allowable.

Steveville Operations

Extensive leasing is under way in the new Steveville field, 130 miles east of Calgary, following completion of Standard of British Columbia 2 Princess, LSD 3, 13-20-12w4, as a commercial producer in the Madison limestone, with 520 bbl. a day crude and 1,275,000 cu. ft. a day gas production. A number of new locations are being made. Standard 3 Princess has been spotted in LSD 5, 13-20-12w4, offsetting Standard 2 diagonally to the northwest. Anglo Canadian Oil Co. of Calgary has location in S½ 18-20-11w4, a little east of the discovery well. Dawson Syndicate will drill in the north half of the same section. Vulcan Oils and National Petroleum Corp. have jointly taken over some 28,800 acres chiefly from the Bell-Campbell-Schultz Syndicate, acreage being in Townships 19, 20, and 21, Range 13. This is west of the discovery, and south of Red Reer River. The same interests hold 15,000 acres in Township 22-13w4 north of the river. Anaconda Oil Co. 1, LSD 15, 9-22-12w4, standing at 4,022 ft. after drilling some distance into the Devonian, will likely be abandoned and a new test started. Royal Canadian Oil Co. of Calgary and Patricia Oils, a new organization, are also planning to drill. Acreage has been taken up as far northwest as Hutton and as far east as Jenner. Standard 2 discovery well is shut in, and Standard 3 will start as soon as the weather permits.

NEXT STOP ST. LOUIS!

AND MY STOP IS HOTEL Mayfair!
TOPS IN FOOD & SERVICE - AND RIGHT DOWNTOWN

ALL ROOMS WITH BATH . . . RADIO RECEPTION

MARKET RECORD OF ACTIVE OIL STOCKS . . .

Compiled by Carl H. Pforzheimer & Co., 25 Broad Street, New York City, Member New York Stock Exchange and New York Curb Exchange

New York Stock Exchange

1941 High	1941 Low	Week ended Feb. 8 High	Week ended Feb. 8 Low	Week ended Feb. 8 Close	Stocks—	Total shares outstanding	Par value	Latest dividend	Payable or last paid	Dividends paid in 1940	Com. sh. earn. 1939	Com. sh. earn. 1938	1940 High	1940 Low	1939 High	1939 Low
50⅜	46¼	47	46⅝	46⅝	Amerada Corp.	788,675	N.P.	50cQ	1-31-41	$2.00	$1.56	$2.07	58½	38½	74½	50
24¼	22¼	23	22¼	23	Atlantic Refining	2,663,999	$25	25cQ	3-15-41	1.00	1.66	1.40	27⅛	18¼	24⅝	18⅛
10½	8⅞	9⅜	8⅞	9⅜	Barber Asphalt Co.	390,223	$10	25c	5-21-40	.50	1.39	—.85	16⅝	8½	21	10¼
9⅝	8⅛	8½	8¼	8½	Barnsdall Oil Co.	2,558,779	$5	15c	3-10-41	.60	.76	1.26	13⅜	7⅛	19½	11⅛
6	5⅜	5⅝	5⅜	5½	Consolidated Oil Corp.	13,751,726	N.P.	12½cQ	2-15-41	.72½	.55	.55	8⅛	5½	9⅞	6½
20½	17⅞	18⅞	17⅞	18½	Continental Oil of Delaware	4,682,572	$5	25cQ	12-23-40	1.00	1.35	1.10	25	16⅛	31½	19⅞
4½	3⅝	3⅞	3⅝	3⅞	Houston Oil	1,098,618	$25	....	10-17-30	....	.43	.83	6⅞	3⅜	9⅜	4½
11⅜	10½	10½	10½	10½	Lion Oil Refining	435,815	N.P.	25cQ	12-31-40	1.00	1.50	2.09	14⅜	9	18⅛	10
15⅛	13¾	14¼	13¾	14⅜	Mid-Continent Petroleum	1,857,912	$10	40c	12-2-40	.80	1.42	.56	17⅜	11½	18	11⅛
11	9⅜	9⅜	9⅜	9⅜	Mission Corporation	1,378,645	$10	25c	12-20-40	.25	.87	1.04	11⅜	7⅛	14⅞	8¾
6⅝	5½	5¾	5½	5½	National Supply	1,155,517	$10	....	12-22-37	....	—.87	—.79	9¾	4⅝	15½	5⅝
7⅞	6⅞	7¼	6⅞	7⅛	Ohio Oil Co.	6,563,377	N.P.	25c	12-14-40	....	—.10	.25	8⅜	5⅜	10½	6
7⅛	5⅞	6½	5⅞	5⅞	Pacific Western Oil	1,000,000	N.P.	40c	12-19-39	....	.81	1.22	8⅞	5½	11⅞	7
8½	7¼	..	..	..	Pan American Pet. Trans.	4,702,945	$5	25c	12-21-40	.25	1.10	.08	10½	6¾	8¾	5
41¼	36¼	37⅜	36¼	37¼	Phillips Petroleum	4,449,052	N.P.	50cQ	3-1-41	2.00	2.21	2.03	41¾	27⅛	46½	31¼
16⅞	15⅛	15½	15⅛	15⅝	Plymouth Oil Co.	1,038,633	$5	25c‡	12-23-40	‡1.30	2.38	2.59	22¾	15	24	17⅛
8⅞	7⅜	8⅛	7⅜	7⅞	Pure Oil Co.	3,982,031	N.P.	25c	12-20-40	.25	1.11	.38	11½	6¾	11¾	6⅛
9	8	8¼	8	8⅛	Richfield Oil Corp.	4,010,000	N.P.	50c	12-21-40	.50	.65	.51	9¼	5⅞	10¼	6⅝
15⅝	13	13⅝	13	13½	Seaboard Oil of Delaware	1,244,383	N.P.	25cQ	3-15-41	1.00	1.40	1.52	20	11	24⅜	15½
12⅝	10⅛	11⅜	10¼	11⅜	Shell Union Oil	13,070,625	N.P.	50c	12-20-40	.75	.77	.72	13⅛	7⅝	17¼	9⅞
22⅝	19¼	20¼	20	20	Skelly Oil	995,349	$15	50c	12-20-40	1.25	1.99	2.27	23¼	12¼	29½	15½
9¼	8½	9⅛	8½	8⅞	Socony-Vacuum	31,206,071	$15	25cSA	3-15-41	.50	1.10	1.29	12½	7⅛	15⅛	10¼
20⅜	18½	19¼	18⅝	19	Standard Oil of California	13,003,953	N.P.	25cQ	3-15-41	1.00	1.38	2.22	26⅛	16¼	33⅝	24¼
27⅞	26¼	27	26⅜	27	Standard Oil (Indiana)	15,272,020	$25	25c	3-15-41	1.50	2.23	1.82	29	20¾	30	22¾
36½	33⅜	35	33⅝	35	Standard Oil of New Jersey	27,280,998	$25	75c†	12-16-40	1.75	3.26	2.86	46½	29⅞	53½	38
40⅛	36	36	36	36	Standard Oil of Ohio	753,740	$25	$1.25†	12-14-40	2.00	6.64	1.81	41¾	26¼	32¾	17
58¾	54½	55	54½	54½	Sun Oil	2,434,863	N.P.	25cQ§	3-15-41	*1.00	2.74	1.07	65⅞	46¾	66	45¾
1⅝	1½	1⅝	1½	1½	Superior Oil Corp.	1,388,979	$1	10c	12-28-40	.10	.04	.24	2½	1⅛	3⅜	1¾
40¼	35¾	37½	35¾	36¾	Texas Corp.	10,876,139	$25	50cQ	1-2-41	2.00	3.02	2.13	47⅝	33	50¾	32½
3⅜	3	3¼	3	3¼	Texas Gulf Producing Co.	888,147	N.P.	10c	12-14-40	.20	.69	.86	4¼	2½	5¾	3¼
6	5⅝	5⅞	5⅝	5⅝	Texas Pacific Coal & Oil	888,236	$10	10c	3-1-41	.40	1.00	1.16	8⅝	5⅜	11⅜	7
10⅜	9½	9⅝	9½	9½	Tide Water Associated	6,371,827	$10	15c	3-3-41	.70	1.05	1.28	12	8¾	14¼	9½
14½	12¾	14⅛	13⅝	14⅛	Union Oil Co. of California	4,666,270	$25	25c	2-15-41	1.00	1.25	1.47	17½	12	19¾	15⅛
29¾	26¾	28	26¾	28	Union Tank Car Co.	1,177,381	N.P.	50c	3-3-41	1.75	2.07	1.16	29⅞	22¾	24¼	20⅛
1⅞	1¾	..	..	..	Wilcox Oil & Gas	470,768	$5	10c	2-15-40	....	.77	.52	3⅝	1¾	4¼	2⅜

*Also 5 per cent in stock. †Includes extras. ‡Also 2 per cent in stock. §Also 6 per cent in stock. —Deficit.

New York Curb Exchange

1941 High	1941 Low	Week ended Feb. 8 High	Week ended Feb. 8 Low	Week ended Feb. 8 Close	Stocks—	Total shares outstanding	Par value	Latest dividend	Payable or last paid	Dividends paid in 1940	Com. sh. earn 1939	Com. sh. earn 1938	1940 High	1940 Low	1939 High	1939 Low
7	5½	6⅜	5⅞	6⅜	American Republics Corp.	1,308,049	$10	25c	12-18-40	....	$0.14	—.22	10¾	4½	11¾	5½
1¾	1½	1½	1½	1½	Bridgeport Machine Co.	263,700	N.P.	$1.25	12-30-37	....	—.95	—.14	3¼	1⅜	7¼	2½
40¼	38	37¾	36½	36½	Buckeye Pipe Line Co.	200,000	$50	$1	3-15-41	$4.00	3.13	2.36	43	28	34¾	26½
110¼	109	..	..	..	Chesebrough Mfg. Co.	120,000	$25	$1.50Q†	12-16-40	6.00	7.87	5.32	117	95	130	108⅝
5⅛	4¼	4⅝	4¼	4⅜	Cities Service (new)	3,703,978	$10	....	6-1-32	....	.68	.23	6¾	4	9¼	4¼
⅞	⅝	¾	⅝	⅝	Cosden Petroleum	465,332	$1	....	.....	....	....	....	2⅛	⅝	2¼	½
15¼	13⅝	14¼	13¾	14	Creole Petroleum	6,974,356	$5	50cSA†	12-16-40	1.00	1.38	1.64	24¼	11⅝	28	16¾
4¼	3¾	3⅞	3¾	3⅞	Darby Petroleum	351,390	$5	25cSA	1-15-39	....	.03	.69	4⅝	2⅞	7⅛	3⅝
1⅛	1	1⅛	1⅛	1⅛	Derby Oil & Refining	263,162	N.P.	....	.....	....	—.37	—.91	2	¾	2⅝	1½
28⅜	21½	..	..	..	Eureka Pipe Line	50,000	$50	$3.50†	2-1-41	2.25	.63	—.37	31	20¼	23	15⅛
33½	31¾	33¼	32	33¼	Gulf Oil Corp.	9,076,202	$25	25cQ	12-27-40	1.25	1.69	1.43	39⅞	25⅛	45⅛	29¼
63	56⅞	57¾	56⅞	57½	Humble Oil & Refining	8,987,840	N.P.	62½c	12-26-40	2.00	3.33	3.98	68	47⅛	71	52½
6⅞	5¾	6⅝	6⅛	6⅝	Imperial Oil of Canada	26,965,078	N.P.	25c	12-2-40	.62½	.71	.96	12⅜	5⅜	17	11⅜
3⅞	3⅜	3½	3½	3½	Indiana Pipe Line	300,000	$7.50	20c	11-15-40	*2.80	.33	.47	7¾	3	7¼	5½
10¾	8⅞	9⅞	9½	9⅞	International Petroleum	14,324,088	N.P.	30c	12-21-40	1.25	1.19	1.98	10¾	8¼	27½	17
2½	1¾	2½	2¼	2½	Kirby Petroleum Co.	500,000	$1	10c	4-15-38	....	.06	.14	2¾	1⅝	3¾	2⅛
10⅛	9⅜	10	9¾	10	Lone Star Gas	5,518,347	N.P.	30c	12-21-40	.70	.98	.88	10¾	7⅝	10½	7⅛
4⅝	4¼	4⅜	4¼	4¼	Louisiana Land & Exp.	2,966,762	$1	5c	12-16-40	.35	.22	.45	6¼	3¾	7¾	4
10	9½	..	..	..	Margay Oil Corp.	149,943	N.P.	25cQ	1-10-41	1.00	1.52	2.28	17	9¼	17	14½
8	7¼	7½	7¼	7½	Midwest Oil Co.	998,474	$10	45c	12-16-40	.90	.99	.93	8½	6½	8¾	6⅝
5¾	5⅛	5¼	5¼	5¼	Mountain Producers	1,593,584	$10	30cSA	12-16-40	.60	.70	.62	6¼	4⅞	6	4⅞
12⅜	11½	12	11⅞	12	National Fuel Gas	3,810,183	N.P.	25cQ	1-15-31	1.00	.95	.84	13⅛	10	14	11¼
12⅜	10¼	11⅜	11	11	National Transit	509,000	$12.50	50c	12-16-40	1.00	.91	.88	12½	8¾	9½	7¼
1⅛	1	..	..	..	New Mexico and Arizona	1,000,000	$1	1c	12-1-37	....	.02	.02	1¼	¾	1¾	1
7	6⅝	..	..	..	New York Transit	100,000	$5	25c	9-20-40	.60	.88	.16	7¾	5¼	6	4
9¾	8¼	9	9	9	Northern Pipe Line	120,000	$10	40c	12-2-40	.80	.31	.24	9⅞	6	7	4½
3¼	2⅜	2⅞	2⅜	2⅞	Pantepec Oil	2,856,872	$1	....	.....	....	....	....	5½	2½	7⅝	4
1½	1	1⅛	1⅛	1⅛	Root Petroleum Co.	336,045	$1	25c	2-1-37	....	.70	.17	3¼	1	5	1¼
2½	2¼	..	..	..	Ryan Consolidated	298,931	N.P.	10c	12-28-40	....	.16	.29	3	1½	3	1⅞
8	7¾	..	..	..	Southern Pipe Line	100,000	$10	25c	3-3-41	.50	.25	—.27	11¾	4¾	4⅞	3½
39¾	37½	38¼	38	38	South Penn Oil	1,000,000	$25	$1.87½†	12-20-40	2.50	2.84	1.44	44	28	40½	26¾
30½	24½	..	..	..	Southwest Penna. Pipe Lines	35,000	$50	50c	12-26-40	6.50	2.06	—.41	35	21	23	18
20⅝	18⅜	19¼	18⅜	18½	Standard Oil of Kentucky	2,604,790	$10	55c†	12-16-40	1.30	1.53	1.45	20⅞	16½	20⅛	17¼
1⅝	1⅜	1½	1⅜	1⅜	Sunray Oil	1,975,876	$1	5c	12-20-40	.10	.25	.23	2	1⅜	2¾	1¾
3	2¾	3	2¾	3	Texon Oil & Land	936,024	$2	10c	12-30-40	.40	.49	.56	3⅛	2	4	2⅝
2½	2¼	2¼	2¼	2¼	Transwestern Oil Co.	750,000	$10	....	.....	....	—1.42	.12	3⅜	2	6	2½
¾	¾	¾	¾	¾	United Gas Corp.	7,818,959	$1	....	.....	....	—.55	—.51	2⅛	¾	3⅜	1½

*Includes $2.50 capital distribution. †Includes extras. —Deficit.

Personal Paragraphs

HERBERT W. LADD, head of the materials department of Stanolind Oil & Gas Co., Tulsa, has been named chairman of the Northeast Oklahoma chapter of the A.P.I. division of production.

RAY INNABENT, formerly assistant district superintendent for Shell Oil Co., Inc., at Goldsmith, West Texas, was made district superintendent, effective February 1, replacing GORDON F. SCOTT, who has resigned.

C. P. DIMIT, Phillips Petroleum Co., Bartlesville, Okla.; T. M. MARTIN, Lion Oil Refining Co., El Dorado, Ark.; and C. H. MURPHY, ROBERT KNOX and O. G. MURPHY, of El Dorado, have been named original members of the Schuler Operating Committee, which will formulate plans for repressuring the recently unitized Jones sand pool of the Union County (Arkansas) oil field.

GAGE LUND, assistant general manager of the Standard Oil Co. of Texas at Houston, Tex., left last week for San Francisco, Calif., for a 2-week business visit.

W. L. GOLDSTON, independent operator, Houston, Tex., has been named a member of the standing committee of the Independent Petroleum Association of America to cooperate with the interstate oil compact committee.

D. E. LOUNSBERRY, chief geologist for the Phillips Petroleum Co., and C. O. STARK, head of the land department, Bartlesville, Okla., made a tour of inspection of the company's holdings in the Gulf Coast district the past week.

J. G. SCHAAFSMA, a member of the process laboratory of General Petroleum Corp., discussed "Elementary Organic Chemistry as Applied to the Valuation and Utilization of Hydrocarbons" at the January meeting of the California Natural Gasoline Association.

At the annual meeting of Independent Refiners Association of California held in Los Angeles, Calif., R. E. HINES was elected president and BERT E. DEVERE was elected first vice president. HENRY BROWN was elected second vice president and A. M. LOCKHART was named secretary-treasurer. In addition to these executive officers L. W. FRANKLEY, J. H. LEWIS and C. B. LIMBOCKER were elected members to the board of directors.

JAMES GIBBONS, of the Dresser Manufacturing Co., Bradford, Pa., has just completed a trip through the Mid-Continent, having visited the offices of pipe-line companies in the area.

JOHN G. MARTIN, former national director for the Ethyl motor clinic system, of the Ethyl Gasoline Corp., has been appointed eastern regional manager. RICHARD C. MURPHY, former manager of the corporation's New York division, has been appointed western regional manager.

ARTHUR W. McCRAY, Rouseville, Pa., brother of JOHN L. McCRAY, of Shell Oil Co., Kilgore, Tex., is serving as instructor in the petroleum and natural-gas department at Penn State College while working for his master's degree. Mr. McCray received his bachelor-of-science degree in petroleum engineering at Penn State last June.

Do You Remember?

From The Oil and Gas Journal Files

25 YEARS AGO

Cushing's Tucker sand gusher was the largest well of the week and the largest to be drilled in Oklahoma to date. Starting at 800 bbl. an hour, it declined to 10,000 bbl. a day by the end of the week.

It is estimated that approximately 3,000,000 cars will be using gasoline in 1916. These will require about 20,000,000 bbl. of gasoline or about two-thirds of the entire amount to be consumed this year.

Secretary of the Interior Franklin K. Lane estimated the reserves of the United States to be 7,639,000,000 bbl. He considers that an additional 75,000,000 bbl. or more may be discovered in such states as New Mexico, Michigan, Arkansas and Mississippi.

20 YEARS AGO

An important wildcat was completed near Waterloo, Monroe County, Illinois. The producing horizon is the Trenton which is found at a depth of 400 ft.

Wage reductions are now in order with teamsters and drillers cut to $10 a day while tool dressers draw $9.

10 YEARS AGO

Another high-gravity pool was discovered in western Kansas in Rice County. It is believed to be on the same trend of folding as the recent Ploog discovery, also in Rice County.

The first consignment of gasoline in the new 8-in. line of the Great Lakes Pipe Line Co. was delivered at the bulk station near Kansas City.

The Federal Trade Commission has consented to a 60-day suspension of its nullification of the marketing Code of Ethics and a hearing on the issue.

JAMES H. RICHARDS, Gulf Oil Corp. engineer, has been transferred from Seminole, Okla., to Tulsa.

L. M. MOFFITT, Triangle Drilling Co., Inc., Shreveport, La., and O. C. BAILEY, chairman, Arkansas Oil and Gas Commission, were recently named to the standing committee of the Independent Petroleum Association of America.

GUY WELLMAN, general counsel of Standard Oil Co. (New Jersey), retired last week under the provisions of the company's annuity plan. He celebrated his sixty-fifth birthday the same day and associates in the law department presented him with a silver plate at a reception held in the company's offices at 30 Rockefeller Plaza. He was presented with a set of bookends at a luncheon given him by a group of friends at the Chamboard. Mr. Wellman is best known for his conduct of legal matters in connection with the Standard's reparation claims against Germany after the first World War, and in negotiations leading to the formation of the Iraq Petroleum Co. out of American, British, Dutch and Armenian capital. Due to the efforts of this group, the oil resources of Iraq were brought to world markets through construction of a Y-shaped line to British Haifa and French Tripoli on the Mediterranean.

W. S. ACKERMAN, of Tide Water Associated Oil Co., was in Los Angeles, Calif., a few days ago on company business but has returned to his office in San Francisco.

JAMES B. ARTHUR, manager of foreign sales of Union Oil Co. with offices in Los Angeles, Calif., has been selected as a member of the Los Angeles County grand jury for the ensuing year.

LOU NOVIKOFF, the sensational baseball player, known as the "mad Russian," sold by the Los Angeles club to the Chicago Cubs for $100,000, is working with a drilling crew in the oil fields near Los Angeles, Calif.

M. L. CASHION, assistant superintendent of production in charge of drilling, Gulf Oil Corp., Houston, Tex., has taken over the duties of AUBREY W. SCHOFIELD, assistant superintendent of production in charge of South Louisiana operations, who is now stationed at Camp Bowie, Tex., as an officer in the Eleventh Observation Squadron of the Texas National Guard.

MORGAN J. DAVIS, formerly Gulf Coast geologist for the Humble Oil & Refining Co., Houston, Tex., has been appointed chief geologist for the company, succeeding L. P. TEAS, who has resigned. H. J. McLELLAN, geologist in the East Texas division, at Tyler, has been appointed as Gulf Coast division geologist to replace Mr. Davis. E. A. WENDLANDT was appointed geologist for the East Texas district.

HARRY R. BLAKE, veteran investigator of the Mid-Continent Petroleum Corp., Tulsa, is back at work after an illness of several weeks.

DR. J. B. RATHER, manager of research and development department, Socony-Vacuum Oil Co., Inc., is spending some time in South America.

L. C. STEVENS, formerly of Standard Oil Co. of Indiana and Mexican Petroleum Corp., has been appointed general auditor of Standard Oil Co. of New Jersey to succeed the late H. L. Frey.

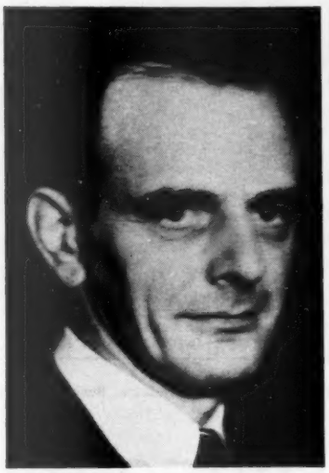
L. P. TEAS, formerly chief geologist for the Humble Oil & Refining Co., Houston, Tex., who recently resigned to go in business for himself, is on an extended trip through South America.

GUY E. CAMPBELL, chief scout of Sun Oil Co., and general chairman of the standing committee on oil-field nomenclature of the Kansas-Oklahoma division of the Mid-Continent Oil and Gas Association, was voted a second term at a meeting of the nomenclaturists last week.

W. R. CANADA, Stanolind Oil & Gas Co., Lake Charles, La., was elected president of the South Louisiana Geological Society at the latest meeting of the organization. P. H. JENNINGS, Magnolia Petroleum Co., was named vice president; E. M. BAYSINGER, of Lake Charles, secretary, and BAKER HOSKINS, Shell Oil Co., Inc., treasurer.

Veteran Lube Engineer

Frank J. Philippbar, chief lubricating engineer of the Kendall Refining Co., Bradford, Pa., got his first job with Kendall when he was a lad of 17. This was 25 years ago. He later became laboratory assistant and then chief chemist, virtually growing up with the expanding lubricating-oil phase of the business. He managed, too, to attend St. Bonaventure College at Allegany, N. Y.



FRANK J. PHILIPPBAR

About 10 years ago Mr. Philippbar was made chief lubricating engineer of the company. He is also a member of the technical committee of the Kendall company. Recently he was elected chairman of the technical advisory committee of the Pennsylvania Grade Crude Oil Association, when this group met at State College, Pa. He succeeded P. M. Robinson.

Mr. Philippbar, a native of Ohio, is a member of the Society of Automotive Engineers, the American Chemical Society, the American Society for Testing Materials, and is on the committee of the Department of Standards and Tests of the National Petroleum Association.

He is married, has three children, and professes photography as his hobby.

A. F. RICHARD has been elected president of the Big Indian Oil & Development Co., Kansas City, Kans. J. W. GARRETT is vice president and R. K. PEARSON, secretary-treasurer.

RUSH GREENSLADE, vice president, Gypsy Division, Gulf Oil Corp., Tulsa, sailed from New York last week on the Grace liner Santa Rosa. Mr. Greenslade was accompanied by Mrs. Greenslade.

W. R. MACATEE has been named to the newly created post of assistant managing director of the Asphalt Institute, effective immediately. He has been serving as district engineer with offices in Washington, D. C.

HARRY H. HILL, chief engineer of Standard Oil Co. of New Jersey, recently spent 2 weeks in California visiting the various fields and studying conditions in San Francisco and Los Angeles but has left for his office in New York.

JAMES A. SHORT, superintendent in the Nome district for Shell Oil Co., Inc., has been transferred to the Black Bayou district in coastal Louisiana. Mr. Short is being replaced at Nome by T. S. HAYWOOD, who was transferred from the Black Bayou district.

M. E. BERGUNDTHAL, who has been with Continental Oil Co. for almost 15 years, has resigned and on March 1 will open an office in Centralia, Ill., as an independent. Mr. Bergundthal also worked for the old Marland of Colorado before it became the Continental.

PAUL WEAVER, geologist, Gulf Refining Co., Houston, Tex., spoke on "Radioactivity of Sediments" recently before members of the Shreveport Geological Society.

EMBY KAYE, vice president of Distillate Engineering and Processes Co., Tulsa, will address the Ark-La-Tex chapter, W.P.R.A., in Kilgore, Tex., Friday night, on the subject, "Recycling and the Refiner."

R. G. HOLLAND, formerly division engineer for Carter Oil Co. at Ponca City, Okla., has become an engineer for Phillips Petroleum Co. in the Bartlesville headquarters and is working on special pool-study assignments. Mr. Holland had supervision over an area extending from Oklahoma City northward through Oklahoma and Kansas. His transfer was the result of a property-exchange agreement between the two companies.

Shifts: N. J. LEA, engineer, Texas Co., from Tulare, Calif., to Fresno, Calif.; J. R. REEVES, geologist, Barnsdall Oil Corp., from Bay City, Tex., to Morgan City, La.; MARION H. FUNK, geologist, Sun Oil Co., from Lubbock, Tex., to Midland, Tex.; J. H. RAMBLIN, JR., engineer, Texas Co., from Shreveport, La., to New Orleans, La.; D. D. UTTERBACK, geologist, Texas Co., from Shreveport, La., to New Orleans, La.; A. E. McDANIEL, superintendent, Olson Drilling Co., from Carmi, Ill., to Olney, Ill.; J. O. RUNDLE, superintendent, Loffland Bros., from Wiggins, Miss., to Opelousas, La.; KENNETH R. WELLS, geologist, General Geophysical Co., from Cadiz, Ohio, to Houston, Tex.; J. S. BLAKENEY, engineer, Warren Petroleum Corp., from Galva, Kans., to Salem, Ill.; L. M. FLEMING, engineer, Kaw Pipe Line Co., from Chase, Kans., to Claflin, Kans.

RUSSELL FARMER, geologist, and GEORGE GALLOWAY, geological scout, both with Stanolind Oil & Gas Co. and formerly in its Fort Worth, Tex., offices, have been transferred to the district offices of the company in Midland, Tex.

KENNETH COVELL, Pure Oil Co., has been transferred to Fort Worth, Tex., from Tulsa, on a special assignment. Mr. Covell joined the Pure company in 1932 at its headquarters in Chicago, and moved to Tulsa in 1935.

EARL W. RISHEL, dealer promotional representative for Standard Oil Co. of Pennsylvania, has been promoted to superintendent of the company's East Freedom, Pa., terminal, succeeding ARTHUR L. RIPLEY who becomes superintenoent of the Philadelphia, Pa., terminal.

DR. EUGENE A. STEPHENSON, head of the department of petroleum engineering, University of Kansas, who has conducted an exhaustive study of the Schuler field, was a witness at the recent state-wide hearing, following which, unitization and repressuring were ordered for the field.

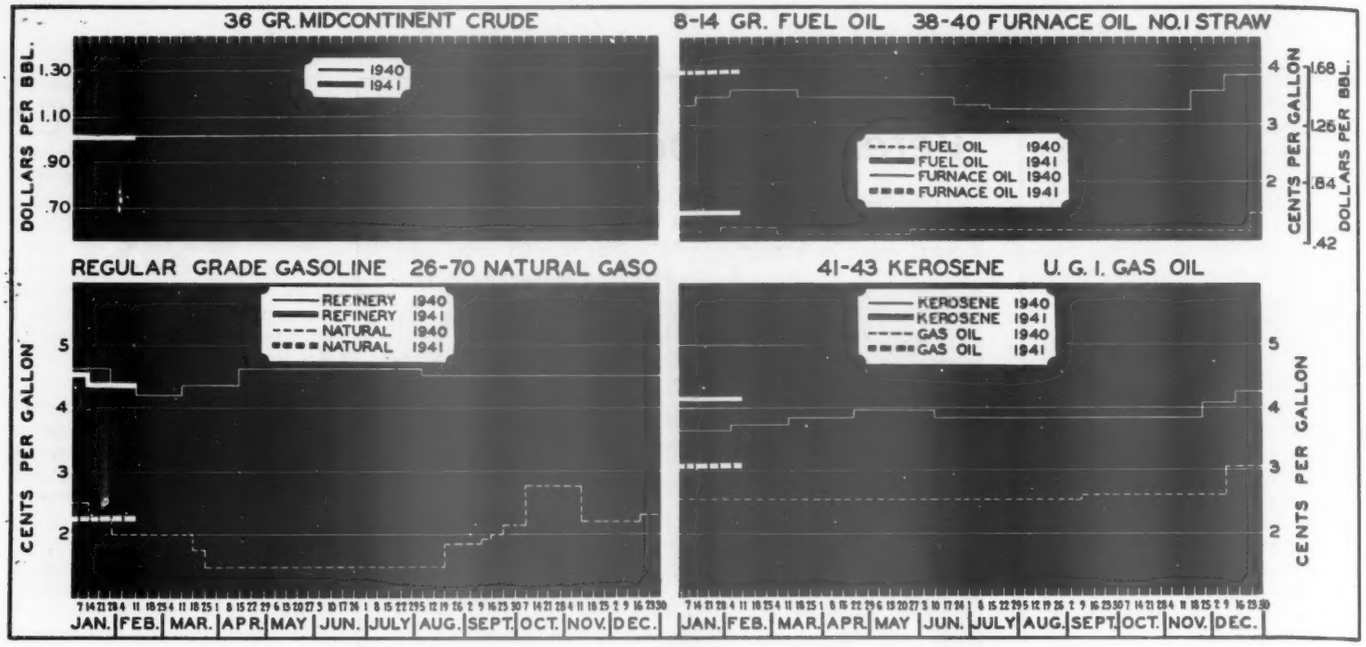
HENRY McCOY and LEROY M. GOODWIN, veteran employes of Oklahoma Pipe Line Co., have retired after periods of service of 19 and 21 years, respectively.

DR. FREDERICK G. CLAPP, of New York City, spoke before members of the East Texas section, A.I.M.E., in Dallas, Tex., Tuesday, on the subject "The Oil Fields of the Iraq-Iranian Area."

H. J. SUMMY, production superintendent for the East Texas, North Texas, West Texas, and Southeast New Mexico division of the Sinclair Prairie Oil Co., has moved with his offices to new headquarters in Fort Worth, Tex., with the company's division offices. He was formerly headquartered at Troup, in eastern Texas.

A. H. MABRY has resigned as divisional manager of the Panhandle Refining Co., Plainview, Tex., to enter partnership with C. E. JACKSON, of Amarillo, wholesale oil dealer. For the past 15 years Mr. Mabry has been with the Panhandle company with headquarters in Plainview, Abilene and Wichita Falls.

CHARLES F. ROESER, president of Roeser & Pendleton, Inc., Fort Worth, Tex., has been reelected to his presidency as have all other officers of the company. MARSHALL R. YOUNG was reelected vice president and ARTHUR M. BRACKETT will continue as secretary-treasurer, with PHILLIP R. WALKER as assistant secretary.



Representative Mid-Continent Quotations on Crude Oil and Refined Products, Basis Oklahoma (Group 3)

Mid-Continent Gasoline-Market Tone Improving as Refiners Build Stocks

By H. STANLEY NORMAN

TONE of the Mid-Continent refinery-gasoline market improved this week indicating that the winter low price has been reached. Rebound from the record low prices prevailing for the last week of January and the first of February so far has been slight but marketers in general have been converted from a depressed viewpoint to one of mild optimism.

Straws of optimism are grasped chiefly from undercurrent of the market. Small refiners supplying resellers are currently asking an eighth of a cent per gallon over early-February prices for regular-grade gasoline. Resellers are still able to buy at figures below the regular tank-car market but their margin of profit between the buying and selling prices has been reduced by an eighth of a cent since early February.

Refiners in Critical Season

Mid-Continent market observers consider this one of the most critical seasons of the year for the refining industry. Evidence is growing with each passing week that the current statistical position of motor fuel is improved over the comparable period a year ago. Fears are expressed that refiners will become too enthusiastic about the improvement in relative position of motor-fuel stocks and will increase crude runs prematurely. Tendency to modify winter restraint on crude-oil runs is already appearing in the weekly refinery-operation report.

Many Mid-Continent refiners are substantially lower in gasoline stocks now than at the middle of February 1940. This relatively short position in stocks is creating stiffer resistance to open-market inquiries. Spring motoring in some parts of the country will get under way within a few weeks and this seasonal consideration plays a part in refiners' appraisal of the price future.

Refined Oil Market Barometer

Decline of tanker rates for coastwise movement is being reflected in lower fuel-oil prices at North Atlantic seaboard terminals. Motor-fuel markets are showing mild improvement. Mid-Continent suppliers are asking an eighth of a cent per gallon more from resellers who remain moderately active in the spot market.

MID-CONTINENT: Residual fuel-oil prices are strong and trending higher.

GULF COAST: Most products are following routine lines. Fuels soft.

CALIFORNIA: Price advance predicted for residual fuels.

PENNSYLVANIA: Supplies of neutrals are tightly held. Bright stock stronger.

CHICAGO: Motor fuel unsettled. Fuels active and strong.

Kerosene and light fuel oils are following routine market lines. Shipments to the northern consuming centers are slightly higher but there are no other special features in the current situation. Demand for range oil is fairly active at the present tank-car price spread of 4 to 4⅛ cents per gallon for material originating in Group 3 territory. Kerosene and No. 2 fuel oil are holding their market positions without particular difficulty.

Demand for residual fuel by northern industrial suppliers and the railroads is growing more insistent. Consumption by carriers and manufacturers of defense materials is beginning to exert an irresistible pull on the supplies regardless of price. Offers of minor premiums are coming from several directions. Mid-Continent refiners are not in position to accommodate all inquiries for residual fuel even by combing the suppliers in Kansas, Oklahoma, Arkansas and North Texas. Railroads in the south central part of the country, which in the Bureau of Mines grouping includes Missouri, Kansas, Texas, Oklahoma, Arkansas, Louisiana, Mississippi and Alabama, consume more than 45 per cent of the fuel oil used by all domestic rail carriers.

Railroads Take Contract Limits

The railroads are taking delivery on maximum quantities specified in their contracts with refiners and are augmenting these supplies with open-market purchases. Low cold-test grades of residual fuel are held by refiners on the current market at a price range of 60 to 70 cents per barrel. Most suppliers are asking top of the price range for prompt delivery.

Furnace distillate-fuel prices are suffering from stocks accumulated in consumer storage during January when the average temperatures in northern states were considerably below normal. The current tank-car market in Group 3 territory for light burning oils ranges from 3⅜ to 3¾ cents. The low side of the distillate-fuel market is under pressure at the present time and resellers report offers of material at 3⅛ to 3¼ cents per gallon. The nation's stocks of gas oil and distillate fuel, which cover all burning products between kerosene and residual, are approximately 11,500,000 bbl. greater than a year ago. Evidence is growing that refiners will find economic advantage soon in restricting the distillate-fuel cut and liberalizing production of residual fuel.

The market for natural gasoline is steady without feature. Demand is fairly active from Oklahoma and Kansas refiners and blenders. Manufacturers of natural gasoline in Oklahoma are asking 2⅜ cents for 26-lb. material.

Eastern Fuel-Oil Prices Soften As Tanker Rates Dip 15 Cents

By J. P. O'DONNELL

NEW YORK, Feb. 11.—Another sharp drop in coastwise tanker rates was the outstanding development of the week affecting the eastern refined-products markets. The drop in tanker rates was followed immediately by lower prices for both heating oil and kerosene and other products appeared weaker in sympathy.

The 4,245-ton tanker W. W. Mills was chartered for February loading at 45 cents a barrel for light heating oil, a drop of 10 cents from an earlier charter which was also 5 cents below previous levels. Thus the total decline in clean tanker rates for No. 2 heating oil was 15 cents during the week.

Present rates are now 35 cents below the 80-cent high reached at the end of the first week in December and maintained for several weeks. They are now comparable to early November rates. In November the rate on No. 2 heating oil jumped from 41 to 72 cents per barrel, the first-of-the-month figure being only 4 cents below the current midseason rate.

Lower Rates Probable

Shipping interests are of the opinion that even lower rates are probable. This belief is based on the fact that stocks of heating oil on the East Coast are fully adequate, demand for February tonnage is low and a number of clean boats are now available for coastwise service. Inquiries for February loading are few. There are no inquiries reported for March. A prospective charterer is reported to have bid 35 cents per barrel for heating oil, and while the offer was declined it is regarded as typical of the prospects for the clean coastwise-tanker market.

Chartering of the W. W. Mills at the rates mentioned above makes the current rates for clean tankers in Gulf-to-north-of-Hatteras service 40 cents per barrel for gasoline, 42 cents for kerosene and 45 cents for No. 2 fuel oil. In contrast dirty rates continue comparatively high, the last paid being reported at 59 to 66 cents for crude oil, depending on the gravity. There are virtually no dirty bottoms available at this time and the market is firm.

Immediately after the tanker-rate reduction, two of the larger marketers of fuel oil on the East Coast reduced tank-car prices in the New York Harbor area and retail prices in the metropolitan district 0.2 of a cent. These and preceding reductions are a direct result of the decline in transportation rates from the Gulf Coast. The 35-cent reduction from the mid-December peak has been equivalent to 5/6 cent per gallon. During this time the No. 2 heating-oil tank-car price dropped 0.6 of a cent.

Neither the decline in tanker rates nor the drop in prices is indicative of low consumption for in the week preceding the last tanker-rate and price reductions, demand for heating oil on the East Coast was at record levels. More than 500,000 bbl. were withdrawn from storage in that week, one of the heaviest inventory reductions for a single week of the 1940-41 consuming season. If gas-oil and distillate stock reductions could be maintained at anything like that rate for a few weeks, a marked stiffening of both tanker rates and market prices would result.

Diesel Cut 10 Cents

The 0.2-cent reduction in No. 2 fuel-oil prices brought the open-market quotation down to 4.3 cents per gallon against the season's high of 4.9 cents. The same marketers that reduced heating oil made similar adjustments in kerosene prices. Kerosene is now quoted on the open market at 4.9 cents per gallon against a season high of 5.5 cents. The highs were in effect at the first of the year, the entire reduction coming in the past 5 weeks.

Diesel oil was also quoted lower on the East Coast. A 10-cent reduction last week dropped the price to $1.75 per barrel. This was the second consecutive week in which diesel-oil prices have been reduced 10 cents per barrel. In the meantime the shore-plant price has been reduced to 4.3 cents per gallon. Current diesel-oil prices contrast with mid-January quotations of $1.95 per barrel and 4.6 to 4.7 cents per gallon.

Bunker C fuel oil remains unchanged at $1.25 per barrel though tank-car lots were reported moving at from 3.4 to 3.6 cents per gallon. Demand for No. 6 fuel oil is reported to be very good and has been bolstered during the past week by reports of export inquiries from many countries.

Despite the price concessions of the past few weeks, resulting more from reduced transportation rates than any other cause, demand for both seasonal and unseasonal products is holding up very well. The current heating-oil season will witness a new consumption record. Gasoline demand is also reported to be unusually high for the season though recently additions to inventories have been heavy. This is particularly true of the last week of January when the coldest weather of the winter was experienced throughout the East Coast and more than 700,000 bbl. of motor fuel were added to storage.

Gasoline prices in the New York Harbor area are firm and tank-car and tank-wagon prices at a number of points in the northeastern area have been raised.

Gulf Coast Gasoline Prices Show Tendency to Stiffen

HOUSTON, Tex., Feb. 11.—A firmer undertone was evident in the Gulf Coast refinery-gasoline market this week. Firmer tone may have been inspired partly by a show of inquiries and price feelers that were making the rounds. Despite this activity the feeling in most quarters is that the market has seen its bottom. Inquiries, however, were not supported by orders, and from a buying standpoint the week continued quiet.

A cargo of 74-76 octane (leaded) gasoline was reported sold at 4¼ cents. This price is possibly a shade higher than the accepted market for such material, but the product reportedly met rigid specifications, for which the purchaser was ready to pay the price. Other conditions also were reported involved. However, there appears to be a tightening of gasolines and some sources of supplies find themselves shorter of material than first reported. A general strengthening of prices might soon be in order.

Diesel oil in bunkers was cut 10 cents at Gulf Coast ports, reflecting the increasing weakness of diesel and burning oils on the Atlantic seaboard. Diesel bunkers now are quoted at $1.40. Burning oils on the Gulf Coast were definitely weaker, with increasing volumes of material offered.

While some sellers still hold to a quotation of 3¼ cents for first-run, full-specification No. 2 fuel, this product is openly offered in substantial volume from various sources at 3⅛ cents, and in small lots at 3 cents.

Bunker C and other residual fuels still are manifesting no life despite assurances of an early pickup in industrial demand. Only the fact that suppliers are not overly pressed with stocks is preventing a break.

A.P.I. Weekly Refinery Statistics

Week Ended February 8, 1941

	Capacity reporting (per cent)	Total gasoline stocks (bbl.)	Residual fuel-oil stocks (bbl.)	Gas oil and distillate stocks (bbl.)	Daily crude runs (bbl.)
East Coast	100.0	19,683,000	9,756,000	13,197,000	567,000
Appalachian	91.0	3,278,000	454,000	422,000	124,000
Ind., Ill., and Ky.	90.2	17,633,000	3,020,000	3,478,000	582,000
Okla., Kans., and Mo.	76.9	8,148,000	2,008,000	1,253,000	267,000
Inland Texas	59.6	2,155,000	1,499,000	388,000	133,000
Texas Gulf	89.2	14,019,000	7,262,000	6,165,000	884,000
Louisiana Gulf	97.6	3,071,000	2,041,000	1,013,000	126,000
N. Louisiana and Ark.	51.5	553,000	520,000	310,000	48,000
Rocky Mountains	56.0	1,485,000	443,000	161,000	57,000
California	87.3	16,570,000	71,213,000	9,697,000	510,000
Total reported	86.2	86,595,000	98,216,000	36,084,000	3,298,000
Est. unreported		6,670,000	1,705,000	625,000	342,000
*Est. total		†93,265,000	99,921,000	36,709,000	3,640,000
*Est. total previous wk.		90,864,000	100,428,000	37,634,000	3,680,000
*Feb. 9, 1940		93,352,000	102,816,000	25,941,000	3,460,000

*Bureau of Mines. †Includes 6,415,000 bbl. of aviation gasoline.

Stocks of Crude Oil in the United States

(BUREAU OF MINES ESTIMATE)

Week ended February 1, 1941	261,208,000 barrels
Week ended January 25, 1941	260,093,000 barrels
Week ended February 3, 1940	239,380,000 barrels

Figures do not include stocks of heavy, unrefinable California crude.

RETAIL OIL MARKETS...

Tank-wagon and filling-station prices on gasoline and kerosene furnished by larger marketing firms

Prices as of February 11, 1941

Taxes

The gasoline quotations given in the following tables include the 1½-cent federal tax, as well as state, county, and city taxes. The gasoline is the regular or standard grade. In most areas lower grades and a premium grade also are available.

Standard Oil Co. (Indiana)

	Gasoline Tank wag.	Dlr.	tax	Incl.	Kero. tank wag.
Chicago, Ill.	14.6	12.6	4.5		10.0
Decatur	14.6	13.1	4.5		10.0
Joliet	15.6	14.1	4.5		10.0
Peoria	15.6	13.2	4.5		10.0
Quincy	15.4	13.9	4.5		9.8
Davenport, Ia.	15.6	14.1	4.5		‡10.0
Des Moines	15.4	13.9	4.5		‡9.8
Mason City	15.8	14.3	4.5		‡10.2
Duluth, Minn.	16.4	14.9	4.5		10.8
Mankato	16.0	14.5	4.5		9.5
Minneapolis	16.0	14.2	4.5		10.4
LaCrosse, Wis.	17.0	15.5	5.5		10.4
Green Bay	17.4	15.9	5.5		10.8
Milwaukee	16.8	15.3	5.5		10.2
Detroit, Mich.	14.1	12.6	4.5		8.1
Grand Rapids	14.8	13.3	4.5		9.1
Saginaw	14.9	13.4	4.5		9.1
Evansville, Ind.	16.6	15.1	5.5		†9.8
Indianapolis	16.8	14.8	5.5		†10.0
South Bend	16.8	15.3	5.5		†10.0
Fargo, N. D.	18.2	16.7	5.5		11.6
Huron, S. D.	17.5	16.0	5.5		10.9
Kans. City, Mo.*	14.9	11.9	4.5		8.6
St. Louis*	14.7	13.2	4.5		9.6
St. Joseph	14.9	13.0	4.5		8.4
Wichita, Kans.	13.8	12.3	4.5		7.2

*State tax 2 cents, 1-cent city tax, and 1½-cent federal tax. †Does not include 4-cent state tax. ‡Does not include 3-cent state tax.

Exclusive of state general sales taxes.

Discounts to commercial consumers. On purchases per month off tank-wagon prices: 1,000 gal. or more, 1.5 cents off, minimum delivery 25 gal.

Stanolex Fuel Oil in Chicago

Effective Dec. 2, 1940, f.o.b. Chicago, tank-wagon prices: Standard heater oil, 1-99 gal., 9.0 cents; 100-149 gal., 8.0 cents; 150 gal. and over, 7.5 cents. Stanolex fuel oil No. 1, 1-99 gal., 8.5 cents; 100-399 gal., 7.5 cents; 400 gal. and over, 7.0 cents. Stanolex furnace oil, 1-99 gal., 8.5 cents; 100-399 gal., 7.5 cents; 400 gal. and over, 7.0 cents. Stanolex fuel oil A, 1-399 gal., 6.0 cents; 400-790 gal. 5.0 cents; 800 gal. and over, 4.75 cents. Stanolex fuel oil B, 1-399 gal., 6.0 cents; 400-799 gal., 5.0 cents; 800 gal. and over, 4.75 cents. Stanolex Bunker C fuel oil, 1-999 gal., 4.75 cents; 1,000 gal. and over, 3.75 cents.

Ohio

STANDARD OIL CO. OF OHIO

	Gasoline Cons'r tank wag.	Dlr. vided	Incl. tax	Kero. tank wag.
Ohio points	16.0	15.0	5.5	*9.0

*Includes state tax of 1 cent.

Atlantic Coast District

STANDARD OIL CO. OF NEW JERSEY

	Gasoline Cons'r tank car	Dlr. tank wag.	Incl. tax	Kero. tank wag.
Atlantic City	11.00	12.60	4.5	7.7
Newark	11.00	12.60	4.5	7.7
Annapolis, Md.	12.85	14.35	5.5	9.5
Baltimore	12.25	13.75	5.5	8.60
Cumberland	13.65	15.15	5.5	10.0
Washington, D.C.	10.50	12.00	3.5	9.5
Danville, Va.	14.45	16.95	6.5	9.0
Norfolk	13.25	15.75	6.5	10.5
Petersburg	13.55	16.05	6.5	11.2
Richmond	13.55	16.05	6.5	11.0
Roanoke	14.75	17.25	6.5	11.0
Charles'n, W. Va.	14.05	16.55	6.5	11.5
Parkersburg	13.35	15.85	6.5	11.2
Wheeling	14.35	16.85	6.5	11.8
Charlotte, N. C.	16.40	15.5	7.5	9.8
Hickory	16.95	18.45	7.5	9.7
Mt. Airy	16.80	16.00	7.5	10.8
Raleigh	16.15	16.00	7.5	10.1
Salisbury	16.45	14.50	7.5	10.5
Charleston, S. C.	14.25	16.75	7.5	9.25
Columbia	15.10	17.60	7.5	(*)
Spartanburg	15.80	18.30	7.5	12.2

Price basis to Essolene undivided dealers: Dealer tank-wagon price less 0.5 cent per gallon. Price basis to commercial consumers, effective March 8, 1937, in Maryland, District of Columbia, and in Arlington and Fairfax counties in Virginia and March 12 in New Jersey: To contract accounts purchasing at least one full compartment at a time by hose connection, on yearly purchases: From 2,500 to 100,000 gal., consumer tank-wagon price at time and place of delivery: 100,000 gal. per year, consumer tank-car price plus 0.5 cent per gallon. Consumer tank-wagon price generally will be equivalent to dealer tank-wagon price less 0.5 cent per gallon.

Effective January 16, 1939, in North Carolina the commercial consumer schedule became as follows: Single deliveries of 50 gal. or more, consumer tank-wagon price. Single deliveries of less than 50 gal., 4 cents per gallon over consumer tank-wagon price. Generally the posted consumer tank-wagon price will be equivalent to the dealer price, less 0.5 cent per gallon. The above policy also applies in South Carolina, effective January 23, 1939.

*Kerosene business of the company at these points now exclusively handled by dealers.

Southern District

STANDARD OIL CO. (KENTUCKY)

	Gasoline Cons'r tank wag.	Net dlr.	Incl. tax	Kero. tank wag.
Atlanta, Ga.	15.0	15.0	7.5	9.0
Augusta	16.5	16.5	7.5	9.5
Macon	16.5	16.5	7.5	9.0
Savannah	15.5	15.5	7.5	9.0
Birmingham, Ala.	16.5	16.5	8.5	8.0
Mobile	15.5	15.5	9.5	8.0
Montgomery	18.0	18.0	9.5	10.0
Jackson, Miss.	15.0	15.0	7.5	9.0
Vicksburg	15.5	15.5	7.5	8.5
Jacksonville, Fla.	16.0	16.0	8.5	8.0
Miami	16.0	16.0	8.5	8.0
Pensacola	17.0	17.0	9.5	8.0
Tampa	16.0	16.0	8.5	8.0
Lexington, Ky.	15.5	15.5	6.5	9.0
Covington	13.5	13.5	6.5	9.0
Louisville	15.0	15.0	6.5	8.5
Paducah	12.5	12.5	6.5	8.5

Price basis to tank-wagon consumers, effective January 4, 1937, 3 cents per gallon below tank-wagon price.

Montgomery, Ala., has a county tax of 1 cent per gallon, and a city tax of 1 cent per gallon on gasoline, in addition to state tax, and 1 cent per gallon on kerosene. Mobile, Ala., has a city gasoline tax of 2 cents per gallon: Birmingham, Ala., has a city gasoline tax of 1 cent per gallon; Pensacola, Fla., has a city gasoline tax of 1 cent. All are included in the table.

Pennsylvania and Delaware

ATLANTIC REFINING CO.

	Gasoline Cons'r tank car	Dlr. tank wag.	Incl. tax	Kero. tank wag.
Philadelphia, Pa.	12.5	13.5	5.5	10.0
Pittsburgh	13.0	15.0	5.5	10.5
Allentown	13.0	14.5	5.5	10.5
Erie	12.5	15.0	5.5	10.0
*Scranton	13.0	14.5	5.5	10.5
Altoona	13.0	15.0	5.5	10.5
Dover, Del.	...	14.0	5.5	10.5
Wilmington	...	13.5	5.5	10.0

Price basis to undivided dealers, dealer tank-wagon price less 0.5 cent per gallon.

Discount on kerosene, 2 cents per gallon off tank-wagon price on tank-wagon deliveries of 25 gal. or more at one time.

Pacific Coast Territory

STANDARD OIL CO. OF CALIFORNIA

	Gasoline Tank truck	Serv. sta.	Incl. tax	Kero. tank wag.
San Francisco	16.5	17.5	4.5	11.5
Los Angeles	16.0	17.0	4.5	10.0
Fresno, Calif.	17.5	18.5	4.5	12.5
Phoenix, Ariz.	20.5	21.5	6.5	*17.5
Reno, Nev.	19.5	20.5	5.5	13.5
Portland, Ore.	19.0	20.0	6.5	13.5
Seattle, Wash.	19.0	20.0	6.5	13.5
Spokane	20.5	21.5	6.5	16.5
Tacoma	19.0	20.0	6.5	13.5

*Includes 5-cent state tax.

Discount to dealers: On gasoline, off tank-wagon price, to 100 per cent dealers, 3 cents. To commercial consumers: On tank-wagon price; on single deliveries of 40 gal. and over, advance quantity discount extended at time of delivery, 3 cents. Service-station schedule applies on single deliveries less than 40 gal. On kerosene in tank-car, transport-truck, and trailer delivery, 3 cents off tank-wagon price; plant deliveries to jobbers, 2.5 cents below tank wagon.

March 18, 1939, split dealer discount was canceled.

New York and New England

SOCONY-VACUUM OIL CO., INC.

	Gasoline Cons'r tank car	Dlr.* tank wag.	Incl. tax	Kero. tank wag.
Albany	12.7	12.9	5.5	7.8
Met. New York	12.5	12.7	5.5	7.6
Buffalo	13.0	13.5	5.5	8.1
Rochester	13.2	13.7	5.5	8.6
Syracuse	12.5	10.7	5.5	8.8
Portland, Me.	12.2	10.5	5.5	8.0
Manchester, N. H.	13.4	12.8	5.5	8.9
Burlington, Vt.	11.8	12.0	5.5	8.3
Boston, Mass.	10.9	11.4	4.5	8.0
Worcester	11.5	11.5	4.5	8.0
Hartford, Conn.	11.3	11.5	4.5	7.5
New Haven	11.1	11.3	4.5	7.7
Providence, R. I.	10.9	11.9	4.5	8.0

*Undivided.

Effective August 8, 1940, the company changed its commercial consumer policy in New York and New England to the following:

Full compartment deliveries: Accounts buying less than 20,000 gal. annually, 0.5 cent above the commercial-consumer price; accounts buying from 20,000 to 120,000 gal. annually, commercial-consumer price; accounts buying 120,000 gal. annually and above, 0.25 cent off consumer price. Split compartment deliveries: Delivery of less than a full compartment, 250 gal., commercial-consumer price plus 1 cent. Steel-barrel deliveries: Commercial price plus 3 cents.

Rocky Mountain District

CONTINENTAL OIL CO.

	Gasoline Tank wag.	Incl. tax	Kero. tank wag.
Denver, Colo.	14.5	5.5	10.5
Grand Junction	16.5	5.5	12.0
Pueblo	15.5	5.5	9.0
Casper, Wyo.	16.5	5.5	11.5
Cheyenne	12.0	5.5	11.0
Billings, Mont.	16.5	6.5	12.0
Butte	15.5	6.5	13.0
Great Falls	15.5	6.5	12.0
Helena	15.5	6.5	12.5
Salt Lake, Utah	16.0	5.5	14.0
Boise, Idaho	†18.6	6.5	16.0
Twin Falls	†19.6	6.5	16.5
Albuquerque, N. M.	*16.0	7.0	9.5
Roswell	*14.0	7.0	8.0
Santa Fe	‡17.0	7.5	9.5

*Includes city tax of 0.5 cent. †Includes toll-bridge tax of 1 mill. ‡Includes city tax of 1 cent.

Tank wagon represents price to consumers. Dealer represents price to dealers. If no dealer price is quoted, the tank-wagon price applies to all classes of trade.

Central South District

STANDARD OIL CO. OF LOUISIANA

	Gasoline Cons'r tank car	Dlr. tank wag.	Incl. tax	Kero. tank wag.
New Orleans, La.	14.25	16.75	8.5	‡10.0
Baton Rouge	14.75	17.25	8.5	‡10.5
Alexandria	14.75	17.25	8.5	‡10.5
Lafayette	15.00	17.50	8.5	‡10.0
Lake Charles	14.75	17.25	8.5	‡10.0
Shreveport	14.00	16.50	8.5	10.0
Knoxville, Tenn.	18.00	20.00	8.5	12.5
Memphis	16.00	18.00	8.5	11.0
Chattanooga	17.50	17.35	8.5	12.0
Nashville	17.00	17.50	8.5	11.0
Bristol	18.25	18.75	8.5	12.0

Essolene at dealer price less 0.5 cent per gallon to undivided dealers.

‡Includes 1-cent state tax.

Price basis to commercial consumers: Effective May 15, 1937, deliveries of 50 gal. or more in one territory take posted consumer tank-wagon price. Accounts taking deliveries of less than 50 gal. at one time pay posted consumer tank-wagon price plus 4 cents per gallon. Generally, the posted consumer tank-wagon price will be equivalent to the dealer price less 0.5 cent per gallon. Kerosene prices include 1-cent state tax.

Effective February 24, 1939, the company reestablished in New Orleans the commercial consumer policy on motor fuel effective in the rest of the state.

Effective December 12, 1938, the company revised its commercial consumer policy on motor fuel in New Orleans, as follows: Single deliveries of less than 50 gal., consumer tank car plus 2 cents per gallon 50 to 199 gal., consumer tank car plus 1 cent per gallon; 200 gal. and over, consumer tank car plus 0.5 cent per gallon.

Oklahoma and Arkansas

CONTINENTAL OIL CO.

	Gasoline Tank wag.	Incl. tax	Kero. tank wag.
Texarkana, Ark.	13.5	5.5	6.0
Fort Smith	13.5	5.5	6.5
Little Rock	16.0	8.0	8.0
Muskogee, Okla.	13.5	5.5	7.0
Oklahoma City	12.5	5.5	6.5
Tulsa	12.5	5.5	6.0

Tank wagon represents price to consumers. If no dealer price is quoted, the tank-wagon price applies to all classes of trade.

Nebraska

STANDARD OIL CO. OF NEBRASKA

	Gasoline Tank wag.	Dlr.	Incl. tax	Kero. tank wag.
Omaha	17.4	15.9	6.5	9.8
McCook	17.0	14.4	6.5	9.5
Norfolk	17.5	15.9	6.5	9.9
North Platte	17.8	16.0	6.5	10.2
Scottsbluff	17.4	15.0	6.5	10.8

Discounts to commercial consumers for tank-wagon deliveries covered only by standard commercial consumers contract, effective January 1, 1935.

Texas

	Gasoline Tank wag.	Dlr.	Incl. tax	Kero. tank wag.
Dallas, Tex.	11.5	15.5	5.5	6.0
Fort Worth	11.5	15.5	5.5	7.0
Houston	12.0	16.0	5.5	8.0
San Antonio	12.5	17.0	5.5	8.0

Naph'ha

STANDARD OIL CO. (INDIANA)

	Tank wagon*
Oleum spirits	16.2
V.M.&P. naphtha	16.5
Cleaners' naphtha	15.5
Stanisol	15.5

*Prices include 3-cent Illinois tax but not 1-cent federal tax nor 2 per cent retail occupational tax.

Prices f.o.b. Chicago. Each price subject to discount of 1 cent per gallon for 150-gal. lots if covered by contract.

Canada

3-Star Imperial Gasoline
IMPERIAL OIL, LTD.

	Gasoline Tank wag.	Incl. tax	Kero. tank wag.
Halifax, N. S.	24.5	10.0	18.0
St. John, N. B.	24.5	10.0	18.0
Montreal, Que.	24.0	8.0	16.5
Toronto, Ont.	24.5	8.0	17.0
Hamilton, Ont.	24.5	8.0	17.0
Winnipeg, Man.	27.5	7.0	22.5
Brandon, Man.	28.0	7.0	22.5
Regina, Sask.	25.0	7.0	20.0
Saskatoon, Sask.	28.0	7.0	23.0
Edmonton, Alta.	25.9	7.0	20.0
Calgary, Alta.	23.0	7.0	18.0
Vancouver, B. C.	21.0	7.0	23.0

Tank-Wagon Changes

Socony-Vacuum Oil Co., Inc., advanced the consumer tank-car and dealer tank-wagon price of regular gasoline 0.9 cent per gallon February 5 at Albany, N. Y. The company advanced consumer tank-car quotations on gasoline 0.2 cent per gallon the same day at Portland, Me., and reduced the undivided dealer tank-wagon price 1.3 cents. The consumer tank-car price was advanced 0.2 cent at Manchester, N. H., and the tank-wagon price raised 0.7 cent per gallon. The tank-car price at Boston was advanced 0.2 cent and the tank-wagon quotation was raised 0.7 cent February 5. The company advanced tank-car prices 0.2 cent per gallon at New Haven, Conn., and Providence, R. I., February 5 and increased the dealer tank-wagon price at Providence 0.2 cent on the same day. The kerosene tank-wagon price was reduced 0.2 cent per gallon February 6 in New York.

Standard Oil Co. of Kentucky reduced the tank-wagon and tank-car price of regular gasoline 1 cent January 25. An advance of 1 cent to both classes of trade was made January 29 at Augusta, Ga., and the Macon, Ga., price to tank-car consumers and dealers was advanced on the same day 1.5 cents per gallon.

PRICES OF REFINED PRODUCTS...

All quotations f.o.b. plant in cars for interstate or export movement except as otherwise noted

Prices as of February 11, 1941

The quotations are exclusive of the federal excise taxes of 1 cent a gallon on gasoline and 4 cents a gallon on lubricating oils. Octane ratings in Middle West, Mid-Continent, and Southwest are based on A.S.T.M. method of testing.

Refinery Gasoline

OKLAHOMA (Group 3)—

U. S. Motor grades:		
72-74 octane (regular)	.04⅜	.04½
63-66 octane	.03⅞	.04⅛
60 octane and below	.03⅝	.03¾
60-62 400 grades:		
72-74 octane (regular)	.04⅜	.04½
63-66 octane	.04	.04¼
60 octane and below	.03⅝	.03⅞

NORTH TEXAS—

U. S. Motor grades:		
72-74 octane (regular)	.04⅜	.04½
63-66 octane	.03⅞	.04⅛
60 octane and below	.03⅝	.03¾
60-62 400	.03⅝	.04½

NORTH LOUISIANA (Ark. and N. La. delivery)—

U. S. Motor grades:		
72-74 octane (regular)	.04⅜	.04½
63-66 octane	.03⅞	.04⅛
60 octane and below	.03¾	.03⅞

ARKANSAS (Ark. and N. La. del.)—

U. S. Motor grades:		
72-74 octane (regular)	.04⅜	.04½
60 octane and below	.03⅝	.03¾

CHICAGO (Based on Group 3)—

U. S. Motor grades:		
72-74 octane (regular)	.04⅜	.04⅝
63-66 octane	.04	.04⅜
60 octane and below	.03⅝	.03¾
60-62 400 grades:		
72-74 octane (regular)	.04⅜	.04⅝
63-66 octane	.04	.04¼
60 octane and below	.03⅝	.03¾

PENNSYLVANIA (inland refineries)—

74-76 octane (regular)	.06
72-74 octane	.05¾

CALIFORNIA (domestic movement)—

58-60 400, 65 oct. and higher	.05½	.07¼
54-58 U. S. Motor	.04½	.06¼

EAST COAST (domestic)—

U. S. Motor grades:		
New York (Bayonne)*	.05½	.05¾
Philadelphia	.05½	.06¾
Boston	.05¼	.06
Baltimore	.05½	.06¾
Charleston, S. C.	.06¼	.06½

*All grades of gasoline ⅛ to ¼ cent less for barge shipments. New York Harbor prices are for New York and New England delivery. Prices for New Jersey delivery ¼ cent lower.

GULF COAST (domestic)—

U. S. Motor grades:		
72-74 octane (leaded)	.03¾	.03⅞
70-72 octane (unleaded)	.03¾	.04
68-70 octane (unleaded)	.03½	.03¾
Below 68 octane (unleaded)	.03¼	.03½

Natural Gasoline

OKLAHOMA (Group 3)—

Grade 26-70		.02⅝
Grade 18-55	.02¾	.02⅞

NORTH TEXAS—

Grade 26-70	.02
Grade 18-55	.02⅝

CALIFORNIA—

75-85 375-390	.04½	.05¼

NORTH LOUISIANA (Ark. and N. La. delivery)—

Grade 26-70	.02

Tractor Fuel

OKLAHOMA (Group 3)—

40-42 gr., 315-325 i.b.p., 110-flash, 540-550 e.p.	.03½	.03⅝
41-43 gr., 300-320 i.b.p., 110-125 flash, 500-520 e.p.	.03⅝	.03¾
46-48 gr., 210-230 i.b.p., 480-max., e.p.	.03⅞	.04

Kerosene

(All kerosene water white)

OKLAHOMA (Group 3)—

42-44	.04¼	.04⅜
41-43	.04⅛	.04¼

NORTH TEXAS—

41-43	.04	.04⅛

NORTH LOUISIANA (Ark. and N. La. delivery)—

41-43	.04	.04⅛

ARKANSAS (Ark. and N. La. del.)—

41-43	.04	.04¼

PENNSYLVANIA (inland refineries)—

46	.05¼	.05½
45	.05⅛	.05¼

CHICAGO (Based on Group 3)—

42-44	.04¼	.04⅜
41-43	.04⅛	.04¼

CALIFORNIA (Pac. Coast market)—

38-40 high-burning test	.04½	.05½

NEW YORK (Bayonne, N. J.)—

41-43	.049

GULF COAST (domestic)*—

41-43	.03½	.03⅝

*Barge price ⅛ cent lower.

Furnace Oil

OKLAHOMA (Group 3)—

Range oil	.04	.04⅛
No. 1 prime white, 38-42	.03⅞	.04
No. 1 straw, 38-40	.03⅞	.04
No. 2 straw, 32-36	.03½	.03¾
No. 3 zero to 10, 28-32	.03⅝	.03½

NORTH TEXAS—

No. 1 prime white, 38-42	.03¾	.03⅞
No. 1 straw, 38-40	.03⅝	.03¾

NORTH LOUISIANA (Ark. and N. La. delivery)—

No. 2, 32-36	.03½	.03⅝

ARKANSAS (Ark. and N. La. del.)—

No. 2, 32-36	.03½	.03⅝

CHICAGO (Based on Group 3)—

Range oil	.04	.04⅛
No. 1 prime white, 38-42	.03⅞	.04
No. 2 straw, 32-36	.03½	.03¾
No. 3 zero to 15, 28-32	.03⅝	.03⅝

NEW YORK (Bayonne, N. J.)—

*No. 1	.049
*No. 2	.043
*No. 4	.043

*Barge deliveries ⅛ to ¼ cent under above tank-car price.

Gas Oil and Fuel Oil

(Gas oil per gal., fuel oil per bbl.)

OKLAHOMA (Group 3)—

U.G.I. gas oil, under 35	.03⅛	.03¼
No. 5, low pour point, 18-22	.75	.80
No. 6, 15 and above, 8-14	.60	.65

NORTH TEXAS—

U.G.I. gas oil, under 35	.03	.03⅛
No. 5, low pour point, 18-22	.75	.80
No. 6, 15 and above, 8-14	.60	.65

NORTH LOUISIANA (Ark. and N. La. delivery)—

10-14 fuel oil, industrial	.70

CHICAGO (Based on Group 3)—

U.G.I. gas oil	.03⅛	.03¼
No. 5, low pour point, 18-22	.75	.80
No. 5, 15 and above, 18-22	.60	.70
No. 6, low pour point, 10-16	.60	.70
No. 6, 15 and above, 8-14	.60	65

PENNSYLVANIA (inland refineries)—

36-40	.04½	.05

CALIFORNIA—

Los Angeles:		
30-40 gas oil, per bbl.	1.10	1.25
24 plus diesel, per bbl.	1.10	1.25
24 plus diesel (bunkers)	1.20	1.35
12-16 (bunkers at tidewater)	.65	.75
10-16 (cargo lots)	.65	.75
12-17 (tank cars)	.60	.75
10-17 (high sulfur)	.50	.65
San Joaquin Valley:		
10-18 (tank cars)	.55	.70
24 plus diesel, per bbl.	1.10	1.25
San Francisco:		
24 plus diesel, per bbl.	1.35	1.40
24 plus diesel (bunkers)	1.40	1.50
10-16 (bunkers)	.75	.80

GULF COAST—

No. 2 fuel	.03⅛	.03⅛
43-47 diesel	.03⅛	.03¼
48-52 diesel	.03⅛	.03⅜
53-57 diesel	.03½	.03⅞
58-and-above diesel	.03⅝	.03¾
Diesel bunkers		1.40
Bunker C (bulk cargoes)	.75	.80
Bunker C (bunkers)		.80

NEW YORK (Bayonne, N. J.)—

27 plus, gas oil		.04⅞
28-30 diesel (lighterage 6¼c per bbl.)		1.75
28-30 diesel (tank cars)		.043
Bunker C (to ocean-going ships in N. Y. Harbor)		1.25
Industrial fuel (tank cars)	.034	.036

Lighterage charge 5c bbl. additional.

Bright and Steam Refined

OKLAHOMA (Group 3)—

200-210 D, 10-25	.18
150-160 D, 0-10	.13½
150-160 D, 10-25	.13
100-110 D, 0-10	.13
100-110 D, 10-25	.12½
Steam refined:	
600 dark green (untreated)	.07

PENNSYLVANIA—

Bright Stocks (Pennsylvania Grade No. 8 color, 140-150 at 210, 545-550 flash):		
10 pour point		.16½
15 pour point		.15½
25 pour point		.14
Steam refined:		
600	.08	.09
650	.09	.10
600 flash	.09½	.11
630 flash	.11	.12

Neutral Oil

(Vis. at 100° F. except Pennsylvania and color N.G.A.)

OKLAHOMA (Group 3)—

0-10 pour point:		
150-3		.08
180-3		.08½
200-3		.08½
250-3		.10
280-3		.10½
280-4		.10
300-3½		.11
350-3½		.11½
400-3½		.12
500-3½		.12½
600-3½		.13
100-2½ paraffin oil 10-25		.05¼
10-25 pour point:		
200-3		.08
250-3		.09½
280-3		.10
280-4		.09½

GULF COAST—

Pale oils:		
100-3	.05½	.05¼
200-3	.07½	.07¼
300-3	.07½	.07¾
500-3½	.08¼	.08½
750-3½	.08⅝	.08¾
1,200-3½	.08¾	.08⅞
2,000-4		.09
3,000-4		.10½
Red oils:		
200-5-6	.06⅞	.07
300-5-6	.07¼	.07½
500-5-6	.08	.08¼
750	.08⅜	.08½
1,200-5-6	.08½	.08⅝

CALIFORNIA (moving to dom. market)—

Pale oils:		
100-2½-3	.07¼	.08
200-2½-3	.07¼	.08
300-2½-3	.07¼	.08
400-3-4	.07¼	.08
450-3-4	.07¼	.08
550-3-4	.09	.11
600-3-4	.09	.11
Red oils:		
200-4-5	.07¼	.08
300-5-6	.07¼	.08
350-5-6	.09¼	.11½
400-5-6	.09¼	.11½
450-5-6	.09¼	.11½
500-5-6	.09¼	.11½
600-5-6½	.09¼	.11½
700-6½ plus	.09¼	.11½
750-6½ plus	.09¼	.11½
900-6½ plus	.09¼	.11½

PENNSYLVANIA—

150 vis. at 70° F., 3 color, 490-405 flash:		
Zero pour point		.22¼
10 pour point		.21½
15 pour point		.20½
25 pour point		.19
200 vis., at 70° F., 3 color:		
Zero pour point		.24½
10 pour point		.23½
15 pour point		.22½
25 pour point		.21

Wax and Petrolatum

(Prices per pound)

OKLAHOMA (Group 3)—

124-126 (A.m.p.) w.c. scale	.02½	.02¾

PENNSYLVANIA (inland refineries)—

122-124 (A.m.p.) w.c. scale	.02¼	.02½
124-126 (A.m.p.) w.c. scale	.02¼	.02½

NEW YORK—

Wax in bags fully refined:	
125-127 (A.m.p.) wax	.0560
128-130 (A.m.p. wax	.0560
130-132 (A.m.p.) wax	.0585
133-135 (A.m.p.) wax	.0615
135-137 (A.m.p.) wax	.0640
Crude scale:	
124-126 (A.m.p.) w.s.	.02¼ .02½
124-126 (A.m.p.) y.s.	.02¼ .02½
Petrolatum in barrels, carload lots:	
Dark green	.02125 .02625
Amber	.02375 .02875
Extra amber	.02625 .03000
Lily white	.04375 .05125
Snow white	.05125 .06000
Cream	.03375 .04125

Export Prices

GASOLINE

GULF COAST—

60-62 400	.03¼	.04
61-63 390	.03¼	.04
64-66 375	.03¼	.04

LOS ANGELES—

U. S. Motor grades:		
Above 69 octane	.05½	.05¾
65-69 octane	.05¼	.05½
60-65 octane	.04½	.05

KEROSENE

GULF COAST—

41-43 water white	.03½	.03¾

LOS ANGELES—

41-43 water white	.05	.05¼

LUBRICANTS

(Pennsylvania Grade)

NEW YORK (f.a.s. in bbl.)—

Cylinder stocks:		
600 S.R. unfiltered	.16	.17
630 S.R. unfiltered	.17	.17⅛
600 flash, S.R.		.18
650 flash, S.R.		.20
Bright stock:		
Light, 25 pour point		.22

NEUTRAL OIL

200-3 color	.27	.27⅛
150-3 color	.25½	.26

PARAFFIN WAX

NEW YORK (prices per lb.)—

123-125 A.m.p.		.0560
125-127 A.m.p.		.0560
128-130 A.m.p.		.0585
133-135 A.m.p.		.0615
135-137 A.m.p.		.0640
Crude scale:		
124-126 w.s.	.02¼	.02⅝
124-126 y.s.	.02¼	.02⅝

EQUIPMENT PROGRESS...

Atlas Opens New Store At Kilgore, Tex.

Atlas Supply Co. announces a new store at Kilgore, Tex., which now gives the company three stores in the East Texas area, and will enable it to serve its

customers to better advantage. The Kilgore store is in charge of E. B. Rainey, who is also the new district manager for Atlas in East Texas. Mr. Rainey formerly operated the Rainey Specialty Co. at Kilgore. J. H. McCrary, formerly with Jarecki Manufacturing Co., will assist in the operation of the store.

With a store in Gladewater, serving the north end of the field, and one in Overton, serving the south end, the location of a store at Kilgore, the geographic center of the field, gives complete coverage of the area.

Worthington Offers Detachable Sheaves for V-Belt Drives

A new type of V-belt driver sheave, designated as the Q-D quick detachable and quick demountable type, is announced by Worthington Pump & Machinery Corp., Harrison, N. J., as a standard item in its Multi-V-Drive line. Extreme simplicity of construction is claimed, and suitability for any application where quick mounting of sheave to shaft, and dismounting from shaft, are desirable; for example, on those classes of equipment where speed ratios must be changed to meet varying conditions. Applications cited are fans, blowers, machine tools, and special equipment. Also, in general maintenance, it eliminates the necessity of a wheel puller to remove wheel or hub from shaft to get at the driving unit.

Each sheave unit consists of two parts, a longitudinally split or clamp hub and a V-grooved rim. The hub is clamped to the shaft by means of a cap screw in its flange and is securely fastened by a standard keyway. A fit equal to a press fit, on shafts up to ten thousandths oversize or undersize, is provided. The rim is taper-fitted to the hub and is fastened with three draw bolts.

The type Q-D sheaves are available in the complete range of standard driver sizes and are stocked at convenient points. Descriptive literature will be furnished upon request to the manufacturer.

O'Conor Named President of Filtrol Corp., Los Angeles

James G. O'Conor, recently of Washington, D. C., where he has been active in an advisory capacity to the U. S. Ordnance Department, has been named president of Filtrol Corp. of Los Angeles, Calif. Filtrol Corp. is the world's largest manufacturer of acid-activated clays which, in addition to many minor uses, are of great importance in the finishing of lubricating oils and of animal and vegetable-oil products. Mr. O'Conor succeeds L. R. Streander, who will remain active as a director.

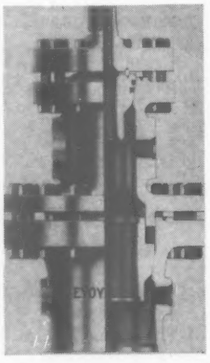
Filtrol Corp. owns and operates plants at Vernon, Calif., and Jackson, Miss., from which it ships its products to many parts of the world. One-half of the outstanding capital stock is owned by Filtrol Co. of California, which in turn is owned by several hundred local stockholders.

Mr. O'Conor comes to his new position after completing 20 years of service with Gilbert and Barker Manufacturing Co., of Springfield, Mass., and New York. With Messrs. Gilbert and Barker, he was foreign manager of both manufacturing and sales, his work taking him into some 85 foreign countries. With the development of the defense program, Mr. Gilbert and Mr. Barker undertook the manufacture of range finders and other vital components of antiaircraft guns, and Mr. O'Conor was stationed in Washington in connection with this activity. Earlier in his career he was connected with W. R. Grace & Co. and with Westinghouse Electric & Manufacturing Co.

With Filtrol Corp., Mr. O'Conor will undertake an expansion of its research work and seek both to further diversify its products and to diversify their industrial application.

Casing Nest Announced by McEvoy Co., Houston

The McEvoy Co., Houston, Tex., has announced a new series of low-cost "casing nests" for medium-pressure wells. These "casing nests" are offered with the option of five types of tubing-head bonnets, seven types of tubing hangers, and three types of casing hangers. This wide choice of hangers and bonnets permits any known method of well completion and will allow last-minute changes in completion program if desired.



Modified A.P.I. flanges permit the installation of blowout preventers without the need of adapters.

According to the manufacturer, the low cost of these casing nests is a result of scientific design, standardized designs, and mass production.

Ample safety factors are allowed. Constructed of 100,000-lb. tensile strength steel, these heads are completely safe. Flanged tubing outlets and tubing-hanger lock screws are available if desired.

McEvoy Type D casing nests are sold through leading supply stores.

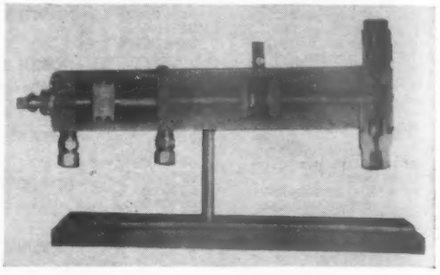
TRADE LITERATURE

QUIMBY PUMP CO., 340 Thomas St., Newark, N. J.—Bulletin S-203, an eight-page booklet describing its screw-type gear-in-head pumps. Construction of the pumps is described, and types and features given. Included is a selection chart for estimating purposes.

QUAKER OATS CO., 141 West Jackson Blvd., Chicago.—12-page booklet, "Furfural as a Selective Solvent," devoted to the use of furfural in the oil industry and other fields as a refining solvent. The process is described, data on the manufacture and cost of furfural are given and its properties listed.

Nelson Proportioning Pump Features Improvements

D. W. Haering & Co., Inc., 2308 S. Winchester Avenue, Chicago, distributor of the Nelson chemical proportioning pump, announces a number of improvements recently incorporated into Nelson pump design and construction. The new improvements are based



upon data obtained from the many Nelson pumps in continuous operation in the field.

Arrangement of the inlet and outlet valves on the feeding end of the pump have been changed to decrease friction losses and lend a greater volumetric efficiency to the pump. The all-Monel metal discs of the poppet valves now feature diagonal grooves which impart a rotary motion to the disc when in operation. This movement insures a complete reseating of the disc each time the valve closes. Better lubrication to the pump has been assured by the replacement of a conventional grease fitting with an oil cup, insuring constant lubrication to all moving pump parts.

Nelson pumps are now available in many new sizes and are being constructed from many alloys and metals in addition to brass. Pumps of special alloy construction are being supplied for corrosive and other special services.

Tube-Turns, Inc., Sets Up West Coast Headquarters; Names New District Manager

Tom H. Pike, Jr., West Coast district manager for Tube-Turns, Inc., Louisville, Ky., has established permanent offices in Los Angeles, Calif., at 210 West Seventh Street. The entire West Coast and territory inland as far as Salt Lake City, Utah, will be serviced from the new Los Angeles office.

John C. Chaffe has been appointed district manager of the Philadelphia, Pa., office of the company. Mr. Chaffe's office will cover a surrounding area that extends through Wilmington, Baltimore, and Washington, D. C. The Tube-Turns Philadelphia office was simultaneously moved from the Lafayette Building to the Broad Street Station Building.

Newquist to Houston For Allis-Chalmers

Ralph R. Newquist has been appointed manager of the district office at Houston, Tex., Allis-Chalmers Manufacturing Co. announced this week. Since joining the company in 1934, Mr. Newquist has been stationed in the district offices at Chicago and Pittsburgh, and more recently at Boston. Prior to that he was connected with several other engineering and electrical concerns.

Mr. Newquist is an electrical engineer, graduated from Pennsylvania State College, and is affiliated with the American Institute of Electrical Engineers. At Houston, he succeeds K. P. Ribble, who has obtained leave of absence for purposes of health.

Staynew Company Announces New Water Filter

Many engineers will be interested to learn that the well-known "radial-fin construction," successfully used by Staynew Filter Corp. in more than half a million filters for air-transmission lines and internal-combustion engines, has now been adapted in a new model to the filtration of water. The new filter, known as the Model CPHLS for water filtration, has already proven its value, under actual working conditions.

Construction is simple and filtering action positive—all water passing through special fabric filter mediums possessing the advantages of high efficiency plus minimum restriction to water flow—advantages which are increased by the radial-fin construction. This construction permits a large area of filtering medium to occupy a relatively small space. For example, a radial-fin-construction insert only 11 in. high by 8¼ in. in diameter possesses an active filtering area of 1,325 sq. in.

There are no moving parts in the new filter, and the large filtering area permits long periods of operation without any attention whatever. When necessary, the entire insert can be easily removed by merely unbolting the head and removing one wing nut. The units can be arranged so that cleaning is effected by backwashing with clean water. Lightness and compactness are also important advantages of the new filter when space is limited, or overhead locations are required.

AMONG EQUIPMENT MEN...

Montrose Elected Lane-Wells Vice President

M. E. Montrose, general sales manager of Lane-Wells Co. for the past 18 months, has been elected a vice president of the company, according to announcement made by Walter T. Wells, chairman of the board. As vice president, Mr. Montrose will continue to direct the company's commercial sales activity.

Prior to joining the Lane-Wells organization in 1935, Mr. Montrose was connected with the General Electric Co. for 14 years, and followed the petroleum industry in Texas and Louisiana, where he was also manager of General Electric Co.'s Shreveport office. As Lane-Wells' first Mid-Continent division manager, he organized the company's activities in the Mid-Continent, Rocky Mountain and eastern fields. Following this, he moved to Houston as the company's Gulf Coast division manager. the position he held until May 1939, when he was transferred to Los Angeles and made general sales manager. He was elected director of the company in 1938.

Mullen Becomes Manager of Tubular Products Sales for Pittsburgh Steel Co.

L. A. Mullen has been made manager of sales of tubular products for Pittsburgh Steel Co., Pittsburgh, Pa. Mr. Mullen has been associated with Pittsburgh Steel Co. since January 1938, first as assistant district sales manager at New York; later as district sales manager at Chicago, and for the past year as assistant manager of sales in Pittsburgh. Before coming to Pittsburgh Steel Co., Mr. Mullen for 10 years had been associated with Republic Steel Corp. in various sales capacities. John R. Blair continues as assistant manager of sales, seamless steel tubes; E. R. Smith as assistant manager of sales, oil-country tubular products, and M. (Jack) London as assistant manager of sales, mechanical tubing.

William B. Baylor has been made assistant district sales manager for Pittsburgh Steel Co. at Los Angeles, Calif. Since September 1936, Mr. Baylor has been field engineer for the company in the Los Angeles district, and in addition to his sales duties in his new capacity, he will continue to carry on his engineering functions. Before coming to Pittsburgh Steel Co. Mr. Baylor was associated with Hughes Tool Co.

Schabarum Heads Texas Sales Of National Supply Co.

B. R. Schabarum has been named sales manager of the Texas division of the National Supply Co., with headquarters at Fort Worth, Tex.

Mr. Schabarum has been with the National organization since June 1926, when following his graduation from the California Institute of Technology in mechanical engineering, he became a member of the company's engineering staff at Toledo, Ohio. From 1926 to 1931 he engaged in laboratory research at Toledo and field investigations in the California, Mid-Continent, and Gulf Coast areas. In 1931 he was assigned to the field engineering staff at Tulsa.

In June 1938 Mr. Schabarum was transferred to the field engineering staff of the Texas division at Fort Worth, and the following year joined National's sales staff in the Texas division. On June 1, 1939, he was appointed assistant sales manager of the division, and continued in this capacity until his recent appointment as division sales manager.

New Pipe-Fabricating Plant in Tulsa

The Southwest Piping & Fabricating Co. will shortly place a new plant in operation at 2100 South Union Avenue, Tulsa. This is the only plant of its kind in this area for pipe bending, cutting, and threading; electric-arc and acetylene welding, annealing, and hydraulic testing with erection crews of experienced refinery fitters for installations.

Walter A. Geppelt, president of the new company, has been prominently identified with industrial pipeline, gasoline-plant, and refinery-engineering projects for the past 20 years.

Guy C. Miller will be superintendent of manufacturing; he has 25 years of experience in pipe fabrication in this country and South America with such companies as M. W. Kellogg and others.

Honor J. W. Gardner on Completion Of 60 Years of Service

As a symbol of his 60 years of service with the Gardner-Denver Co., J. W. Gardner, chairman of the executive committee of the board of directors of the Gardner-Denver Co., today wears on his watch chain a tiny gold, diamond-set model of a steam governor. The token was recently presented to Mr. Gardner by his associates, and recalls the fact that the present company grew from the original Gardner Governor Co., founded in 1854 by Mr. Gardner's father, the late Robert W. Gardner. J. W. Gardner first joined his company as a boy of 17, starting as an apprentice machinist. His service includes nearly 30 years as president and, in most recent years, as chairman of the executive committee of the board of directors.

J. W. GARDNER

Today, with Gardner-Denver air compressors, pumps, rock drills and mine car loaders known throughout industry, the sixtieth anniversary of Mr. Gardner's service follows by little more than a week the recently announced expansion of the company through the purchase of a 13-acre plant near the main plant of the Gardner-Denver Co. in Quincy, Ill.

O. L. Garrett Goes to Dallas For American Iron

O. L. Garrett, who has been located with the American Iron & Machine Works Co. at Houston, Tex., for the past 5 years, has been transferred to Dallas as sales representative of that city, Fort Worth and northern Texas. Mr. Garrett's experience with and knowledge of American Iron products makes him a valuable man for his new post. American Iron & Machine Works Co. are manufacturers of oil-field drilling, fishing and production equipment. Main plants are in Oklahoma City and Houston with service shops in four other cities throughout the Mid-Continent.

H. N. McClatchey Joins Butler Manufacturing Co.

H. N. McClatchey has recently joined the force of Butler Manufacturing Co., sales representatives who call upon Mid-Continent production men to assist them in solving the bulk-storage and housing problems. Mr. McClatchey headquarters at New Iberia, La. Previous to his joining the Butler organization he was employed by Parkersburg Rig & Reel Co.

G. H. Ford Joins Marmon-Herrington

Announcement of the creation of a new test and proving division has been made by the officials of the Marmon-Herrington Co. of Indianapolis, makers of All-Wheel-Drive trucks, tractors and military vehicles. To head this newly created division the company has selected G. H. Ford, for many years chief timer at the Indianapolis Motor Speedway. Mr. Ford has timed practically all of the world's record speed trials conducted in this country. For the past 8 years he has acted as A.A.A. contest board official and in cooperation with Charles Merz, the A.A.A. zone supervisor, has officiated at all the tests, trials and speed runs under official A.A.A. sanction in the Indianapolis area.

CLASSIFIED ADVERTISING

THE MARKET PLACE OF THE OIL INDUSTRY . . .

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Leases and Drilling Blocks

LEASES—East Texas, La., South Ark. 20 acres up, dollar acre up.—Owners—Address Attorney. Box 1122, Little Rock, Ark.

EAST TEXAS Woodbine-Trinity sand wildcats starting. Leases afford 10 to 50 for 1 bet. Has already happened past 60 days. E. CROFT, PROCTOR, TEXAS.

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FOR SALE Oil and gas leases and small production located in Kentucky shallow field, also tracts of proven Fluorspar and zinc deposits. Reports on request. W. P. HARLEY, Bowling Green, Kentucky.

FOR SALE or Trade Producing oil and gas lease on 396 acres in Southern Illinois oil fields. Box A-341, Rm. 1404—105 W. Madison, Chicago, Illinois.

Leases and Drilling Blocks

HOMER L. FITCH, GEOPHYSICIST AND LOCATION ENGINEER
WHY drill dry holes? Our method only locates structures which contain oil or gas. Drawer 711, Brownsville, Texas.

NEW MEXICO
Oil and Gas Leases and Royalties
ROY G. BARTON, Hobbs, N. M.

WANTED, name and address of practical driller owning his own drill, capable of drilling two to four thousand feet. Address T. L. Rice, Ames, Iowa.

INVESTIGATIONS, REPORTS AND MAPS
On producing or nonproducing oil land in Louisiana. Nominal fee.
Petroleum Service Bureau
606 Gravier St., New Orleans

U. S. OIL RESERVE lands can be filed for lease on limited acreage by American Citizens. Want several join me in filing block in developing Rocky Mountain Area. Big opportunity. Small expense. Box A-346, The Oil and Gas Journal, Tulsa, Okla.

WARD-Crane sec. 18B 28, near Silurian test; cheap fee or lease. J. G. Smith, 215 Littlefield Bldg., Austin, Texas.

HAVE SOME real bargains in small leases, close up to drilling wells and production. Also have wonderful drilling blocks. Shelby County. Write Box 451, Center, Texas.

HAVE SEVERAL blocks 1000 to 5000 acres oil and gas leases, selected by four best Eastern Kentucky geologists, forty or more salt well tests made, every one showing oil and gas. Seven thick stratas within 1200 feet surface, no better shallow acreage can be found. Will sell offsets, share drilling costs, farm out, or sell to responsible parties; have maps and geology.

THE OIL AND GAS PRODUCING CO.
Columbia, Ky.

WILL BUY oil and gas properties for salvage. Ohio, Pa., W. Va. Box No. A-361, The Oil and Gas Journal, Tulsa, Okla.

LEASE — 80 A. proven. 42 grav. Pay approx. 2700 ft.; long life. Elec. power and pipe line con. possible. Add: 2644 Rimpau Blvd., Los Angeles, Calif.

Royalties

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Sell in the most active area in the United States—The Permian Basin of West Texas and Southeastern New Mexico. From the standpoint of royalty investors this area has much to offer. Can supply you with choice non-producing royalties located on geophysical highs. Also drilling blocks, close in acreage to production, or wildcat leases. I maintain my own field men who cover this area for me. All offerings meet the requirements of the Security and Exchange Commission. Inquiries invited.

B. D. BUCKLEY
Paul Brown Bldg., St. Louis, Mo.

Legal Blanks

BURKHART'S legal blanks and general forms serving Mid-Cont. oil field since 1908—Okla. Kans. N. Mex. Tex. Ala. Ark. Fla. Ga. Ill. Ind. Ky. La. Mich. Miss. Mo. Neb. N. Dak. Tenn. Wyo. Free catalog samples on request. Burkhart Ptg. & Sta. Co., 115 S. Cinn., Tulsa, Oklahoma.

Geologic Survey

GEOLOGISTS—SURVEYORS
Looking for U. S. or State Geologic Surveys, or other government publications? Write Cornwall's Book Store, 723 Eleventh Street, Northwest, Washington, D. C. Unusually large stock.

For Sale—Maps

NEW Oil & Ownership Map—Smith Co. Texas, including Hawkins Field. Complete map—$15.00—cloth $20.00. Eby Engineering Company, Box 717. Tyler, Texas.

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Classified advertising rates: First insertion, 35 cents a line; each additional insertion, 25 cents a line, PAYABLE IN ADVANCE. Six words usually make a line. Count as a word each one-letter word and each group of figures. White-space computed at regular line rate. Allow two extra lines for blind ads. Ads of less than three lines not accepted. No formal acknowledgment is made, and proofs cannot be shown in advance of publication.

	1 time	2 times	3 times	4 times		1 time	2 times	3 times	4 times
3 Lines	*$1.05*	*$1.80*	*$2.55*	*$3.30*	*7 Lines*	*$2.45*	*$4.20*	*$5.95*	*$7.70*
4 Lines	*1.40*	*2.40*	*3.40*	*4.40*	*8 Lines*	*2.80*	*4.80*	*6.80*	*8.80*
5 Lines	*1.75*	*3.00*	*4.25*	*5.50*	*9 Lines*	*3.15*	*5.40*	*7.65*	*9.90*
6 Lines	*2.10*	*3.60*	*5.10*	*6.60*	*10 Lines*	*3.50*	*6.00*	*8.50*	*11.00*

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1 Inch	*52 times*	*3.50 per inch*

This space may be contracted for over a period of one year from the date of the first insertion and is PAYABLE IN ADVANCE, MONTHLY.

We reserve the right to withhold all advertising of questionable character. To avoid delay be sure to send remittance with copy. We will set your ad in the smallest amount of space possible and refund all overpayments. One-time insertions will not be run until fully paid. Forms close MONDAY NOON before each issue date.

THE OIL AND GAS JOURNAL
Tulsa, Oklahoma

Situations Wanted

CHEM. Eng. 10 yrs. experience in oil devel. refining, and operation. Wish to make change. Address Box A-330, The Oil and Gas Journal, Tulsa, Okla.

ACCOUNTANT, office manager, experienced in oil industry. Capable of handling income taxes, social security and wage and hour matters. Box A-332, The Oil and Gas Journal, Tulsa, Oklahoma.

SUCCESSFUL MANUFACTURERS' AGENT calling on Texas refiners and industrial plants wants additional high quality line which requires experienced engineer who has demonstrated sales ability. Box A-345, The Oil and Gas Journal, Tulsa, Okla.

ACCOUNTANT-Office Manager, experienced in oil industry, capable of taking full charge, desires permanent connection with firm offering opportunity for advancement. Box A-350, The Oil and Gas Journal, Tulsa, Okla.

Help Wanted

WELDING Engineer, graduate metallurgist with experience in fabrication procedure and welding practice. State acceptable salary. Battelle Memorial Institute, Columbus, Ohio.

AMERICAN Citizens, wanted three draftsmen, not now engaged in National Defense work, familiar with power plant design and modern piping. Give complete experience record and sample of work. Address: Siems Drake, Puget Sound, Seattle, Washington.

WANTED
SALESMEN

Geophysical Experience Desirable.

GEOLOGICAL SCIENTIFIC SERVICE CO., INC.
Sinclair Building
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WANTED for sales work in Mid-Continent territory. Technically trained engineer with practical experience in design, field or shop. Age 25-35. Give full details in reply which will be treated confidentially. Address Box A-362, The Oil and Gas Journal, Tulsa, Oklahoma.

SALESMEN experienced handling Royalties can make good connection by writing to Box A-360, The Oil and Gas Journal, Tulsa, Okla.

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ROYALTY owners, Oil Investors, Unit holders, Stockholders in Oil and Royalty Companies. Personnel lists of every branch of oil industry. All by States. We buy lists. New catalogues ready. Oil Industry Mailing List Co., Tulsa Loan Bldg., Tulsa, Oklahoma.

LISTS. All kinds of Oil and Mining lists. By States. Pamphlet. Flory Company, Box 105, Fort Worth, Texas.

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FOR SALE: Beautiful Historical California Ranch, 800 A. Semi modern, improved. Live Oaks, springs, etc. Good roads; 26 miles east San Diego. Snap $36.000. 2644 Rimpau Blvd., Los Angeles.

WYOMING CATTLE RANCH 10,000 A. deeded, 15,000 A. leased. Will handle 3000 cows. Cuts 3500 tons hay. Excellent fishing, hunting and scenery. Spacious modern house. Huge barns and sheds. Will sell completely equipped at less than half value with or without 2000 high grade Herefords. Western Realty Company, 400 Livestock Exchange Building, Denver, Colorado.

Oil Industry Printing

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Leases, assignments, releases, township plat books, well records, etc. Request on your letterhead gets free catalog. Olds Press, 215 East Third St., Tulsa, Okla.